

**AMENDMENTS TO THE CLAIMS:**

Sub #7  
1. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an access control apparatus operable to receive as an input an external ICS user frame, defined by RFC 791 or RFC 1883 and having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame, having an ICS network address in an ICS network address system, in said access control apparatus, wherein ICS network address system is separate from the unique ICS user address system;

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at least one relay apparatus operable to transfer the ICS network frame according to rules of the ICS network address system, and operable to determine a destination of the ICS network frame based on the ICS network address of the ICS network frame; and

a destination access control apparatus operable to restore the ICS user frame from the ICS network frame and to send the ICS user frame to the external information communication apparatus.

2. (Previously Presented) An integrated information communication system (ICS) according to claim 1, comprising at least two value added networks.

3. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame, having an ICS network address in an ICS network address system, in said access control apparatus, wherein the ICS network address system is separate from the unique ICS user address system;

at least one relay apparatus operable to transfer the ICS network frame according to rules of the ICS network address system without changing the ICS network address of the ICS network frame, and operable to determine a destination of the ICS network frame based on the ICS network address of the ICS network frame; and

a destination access control apparatus operable to restore the ICS user frame from the ICS network frame and to send the ICS user frame to the external information communication apparatus.

4. (Previously Presented) An integrated information communication system (ICS) according to claim 3, wherein the ICS user frame is defined by RFC791 or RFC1883.

5. (Previously Presented) An integrated information communication system (ICS) according to claim 3, comprising at least two value added networks.

6. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame, having an ICS network address in an ICS network address system, in said access control apparatus, said access control apparatus including an X.25/ICS network frame converting unit operable to convert the ICS network frame into an X.25 type frame, said access control apparatus being operable to send the X.25 type frame according to rules of an X.25 exchange network; and

a destination access control apparatus, including an X.25/ICS network frame converting unit operable to restore the ICS network frame from the X.25 type frame, said destination access control apparatus being operable to restore the ICS user frame from the ICS network frame converted by said X.25/ICS network frame converting unit and to send the ICS user frame to the external information communication apparatus.

7. (Previously Presented) An integrated information communication system (ICS) according to claim 6, wherein the ICS user frame is defined by RFC791 or RFC1883.

8. (Previously Presented) An integrated information communication system (ICS) according to claim 6, comprising at least two value added networks.

9. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame, having an ICS network address in an ICS network address system, in said access control apparatus, said access control apparatus including a frame-relay/ICS network frame converting unit operable to convert the ICS network frame into a frame-relay type frame, said access control apparatus being operable to send the frame-relay type frame according to rules of a frame-relay exchange network; and

a destination access control apparatus, including a frame-relay/ICS network frame converting unit operable to restore the ICS network frame from the frame-relay type frame, said destination access control apparatus being operable to restore the ICS user frame from the ICS network frame converted by said frame-relay/ICS network frame converting unit and to send the ICS user frame to the external information communication apparatus.

10. (Previously Presented) An integrated information communication system (ICS) according to claim 9, wherein the ICS user frame is defined by RFC791 or RFC1883.

11. (Previously Presented) An integrated information communication system (ICS) according to claim 9, comprising at least two value added networks.

12. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame, having an ICS network address in an ICS network address system in said access control apparatus, said access control apparatus including an asynchronous-transfer-mode (ATM)/ICS network frame converting unit operable to convert the ICS network frame into an ATM type frame, said access control apparatus being operable to send the ATM type frame according to rules of an ATM exchange network, and

a destination access control apparatus, including an ATM/ICS network frame converting unit operable to restore the ICS network frame from the ATM type frame, said destination access control apparatus being operable to restore the ICS user frame from the ICS network frame converted by said ATM/ICS network frame converting unit and to send the ICS user frame to the external information communication apparatus.

13. (Previously Presented) An integrated information communication system (ICS) according to claim 12, wherein the ICS user frame is defined by RFC791 or RFC1883.

14. (Previously Presented) An integrated information communication system (ICS) according to claim 12, comprising at least two value added networks.

15. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an X.25 exchange including

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an

internal ICS network frame having an ICS network address system in said access control apparatus, and

an X.25/ICS network frame converting unit operable to convert the ICS network frame into an X.25 type frame,

wherein said access control apparatus is operable to send the X.25 type frame according to rules of an X.25 exchange network; and

a destination X.25 exchange including

a destination access control apparatus, including an X.25/ICS network frame converting unit operable to restore the ICS network frame from the X.25 type frame, said destination access control apparatus being operable to restore the ICS user frame from the ICS network frame converted by said X.25/ICS network frame converting unit and to send the ICS user frame to the external information communication apparatus.

16. (Previously Presented) An integrated information communication system (ICS) according to claim 15, wherein the ICS user frame is defined by RFC791 or RFC1883.

17. (Previously Presented) An integrated information communication system (ICS) according to claim 15, comprising at least two value added networks.

18. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

a frame-relay exchange including

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame having an ICS network address system in said access control apparatus, and

a frame-relay/ICS network frame converting unit operable to convert the ICS network frame into a frame-relay type frame,

wherein said access control apparatus is operable to send the frame-relay type frame according to rules of a frame-relay exchange network; and  
a destination frame-relay exchange including

a destination access control apparatus, including a frame-relay/ICS network frame converting unit operable to restore the ICS network frame from the frame-relay type frame, said destination access control apparatus being operable to restore the ICS user frame from the ICS network frame converted by said frame-relay/ICS network frame converting unit and to send the ICS user frame to the external information communication apparatus.

19. (Previously Presented) An integrated information communication system (ICS) according to claim 18, wherein the ICS user frame is defined by RFC791 or RFC1883.

20. (Previously Presented) An integrated information communication system (ICS) according to claim 18, comprising at least two value added networks.

21. (Previously Presented) An integrated information communication system (ICS), for use with an external information communication apparatus, said integrated information communication system comprising:

an asynchronous-transfer-mode (ATM) exchange including

an access control apparatus operable to receive as an input an external ICS user frame, having a unique ICS user address system, and to convert the external ICS user frame into an internal ICS network frame having an ICS network address system in said access control apparatus, and

an ATM/ICS network frame converting unit operable to convert the ICS network frame into an ATM type frame,

wherein said access control apparatus is operable to send the ATM type frame according to rules of an ATM exchange network; and  
a destination ATM exchange including

a destination access control apparatus, including an ATM/ICS network frame converting unit operable to restore the ICS network frame from the ATM type frame, said destination access control apparatus being operable to restore the ICS user frame from the ICS network frame converted by said ATM/ICS network frame converting unit and to send the ICS user frame to the external information communication apparatus.

22. (Previously Presented) An integrated information communication system (ICS) according to claim 21, wherein the ICS user frame is defined by RFC791 or RFC1883.

23. (Previously Presented) An integrated information communication system (ICS) according to claim 21, comprising at least two value added networks.

24. (Previously Presented) An integrated information communication system (ICS) comprising;  
wherein an ICS network address for discriminating an ICS logic terminal is assigned to an ICS logic terminal of a terminal in a user communication line,

when a set of an ICS logic terminal discrimination information, a sender ICS user address and a receiver ICS user address is decided, an ICS network communication line to transfer an ICS network frame between an access control apparatus at a sending side and an access control apparatus at a receiving side is uniquely decided,

an ICS network address to decide a destination of the ICS network frame to specify said ICS network communication line is defined by said access control apparatus and a relay table of a relay device,

an external ICS user frame having a unique ICS user address system ADX is inputted to said access control apparatus at a sending side from said user communication line via said ICS logic terminal,

when an ICS logic terminal discrimination information which said ICS user frame inputted, said sender ICS user address and said receiver ICS user address in said ICS user frame are found to be registered at record of the conversion table in said access control apparatus,

said ICS user frame is converted to an internal ICS network frame having an ICS network address system ADS,

said ICS network frame includes a network control field and said network control field stores at least said ICS network address to specify said ICS network communication line,

a destination of said ICS network frame is judged, under a rule of said ICS network address system ADS, by said access control apparatus and by said relay table in said relay device and then said ICS network frame is transferred in said ICS network communication line, and

when said ICS network frame is reached at said access control apparatus at a receiving side, said ICS user frame is restored from said ICS network frame, is transferred in another user communication line via an ICS logic terminal of said access control apparatus at a receiving side and is reached at an external information communication equipment.

25. (Previously Presented) An integrated information communication system according to claim 24, wherein said conversion table includes priority degree, said ICS network frame includes priority degree got from said conversion table, and said ICS network frame is sent by said relay device under said priority degree of said ICS network frame.

26. (Previously Presented) An integrated information communication system according to claim 24, wherein said conversion table has two or more records, a set of said ICS network address for specifying said receiver ICS user address and said ICS network communication line are respectively different for each record to a same set of said ICS logic terminal discrimination information and sender ICS user address, a destination of said ICS user frame is changeable by changing the receiver ICS user address.



27. (Previously Presented) An integrated information communication system according to claim 24, wherein a intra-corporation communication and an inter-corporation communication are enabled in correspondence that said sender ICS user address and receiver ICS user address registered in said conversion table are intra-corporation communication address or inter-corporation communication address.

28. (Previously Presented) An integrated information communication system (ICS) including a closed network;

wherein an ICS network address for discriminating an ICS logic terminal is assigned to an ICS logic terminal of a terminal in a user communication line,

when a set of an ICS logic terminal discrimination information, a sender ICS user address and a receiver ICS user address is decided, an ICS network communication line to transfer an ICS network frame between an access control apparatus at a sending side and an access control apparatus at a receiving side is uniquely decided,

an ICS network address to decide a destination of the ICS network frame to specify said ICS network communication line is defined by said access control apparatus and a relay table of a relay device,

an external ICS user frame having a unique ICS user address system ADX is inputted to said access control apparatus at a sending side from said user communication line via said ICS logic terminal,

when an ICS logic terminal discrimination information which said ICS user frame inputted, said sender ICS user address and said receiver ICS user address in said ICS user frame are found to be registered at record of the conversion table in said access control apparatus,

said ICS user frame is converted to an internal ICS network frame having an ICS network address system ADS,

said ICS network frame includes a network control field and said network control field stores at least said ICS network address to specify said ICS network communication line,

a destination of said ICS network frame is judged, under a rule of said ICS network address system ADS, by said access control apparatus and by said relay table in said relay device and then transferred in said ICS network communication line,

when said ICS network frame is reached at said access control apparatus at a receiving side, said ICS user frame is restored from said ICS network frame, is transferred in another user communication line via an ICS logic terminal of said access control apparatus at a receiving side and is reached at an external information communication equipment,

an ICS network communication line to transfer an ICS user frame between user 1 having an ICS user address and user 2 having an another ICS user address is set to an access control apparatus connected with user communication line of said user 1 and said user 2 respectively, and is set to said relay table in said relay device, and

another ICS network communication line to transfer an ICS user frame between another user m and said user 1 or 2 is set to an access control apparatus connected with user communication line of said user m and said user 1 or 2 respectively, and is set to said relay table in said relay device, and

another ICS network communication line to transfer an ICS user frame between another user n and said user 1, 2 or m is set to an access control apparatus connected with user communication line of said user n and said user 1, 2 or m respectively, and is set to said relay table in said relay device, and

said closed network to transfer said ICS user frame between only said user 1, 2, m and n is composed inside said ICS by a set of all said ICS network communication lines.

29. (Previously Presented) An integrated information communication system according to claim 28, including 2 or more closed networks; wherein communication between optional user x in a closed network and optional user y in other closed network can not be achieved.

30. (Previously Presented) An integrated information communication system (ICS) including a closed network;

wherein an ICS network address for discriminating an ICS logic terminal is assigned to an ICS logic terminal of a terminal in a user communication line,

when a set of an ICS logic terminal discrimination information, a sender ICS user address and a receiver ICS user address is decided, a record of the conversion table is registered to uniquely define a receiving ICS network address,

when an ICS logic terminal discrimination information of an ICS logic terminal which said ICS user frame inputted, said sender ICS user address and said receiver ICS user address in said ICS user frame are found to be registered at the record of the conversion table in said access control apparatus, said ICS network frame is converted into said ICS user frame,

when an external ICS user frame having a unique ICS user address system ADX is inputted to said access control apparatus at a sending side from said user communication line via said ICS logic terminal, and is converted into an internal ICS network frame under a control of said conversion table,

when said ICS network frame is reached at said access control apparatus at a receiving side, said ICS user frame is restored from said ICS network frame, is transferred in another user communication line via an ICS logic terminal of said access control apparatus at a receiving side and is reached at an external information communication equipment,

a first record to be able to communicate ICS user frame is set to a conversion table of access control apparatus connected with user communication line of a user 1 and a conversion table of access control apparatus connected with user communication line of a user 2, respectively, between said user 1 having an ICS user address and said user 2 having an another ICS user address,

a second record of the conversion table in the access control apparatus connected with respective user communication line is set between another user m and said user 1 or 2, thereby to set said user m in the second record to be able to communicate the ICS user frame with said user 1 or 2, and

a third record of the conversion table in the access control apparatus connected with respective user communication line is set between another user n and said user 1, 2 or m, and said

closed network to transfer said ICS user frame between only said user 1, 2, m and n is composed inside said ICS by a set of all said records.

31. (Previously Presented) An integrated information communication system according to claim 30, including 2 or more closed networks; wherein communication between optional user x in a closed network and optional user y in other closed network can not be achieved.

32. (Previously Presented) An integrated information communication system (ICS) comprising; wherein an ICS network address for discriminating an ICS logic terminal is assigned to a last ICS logic terminal of a terminal in a user communication line,

a receiver ICS user address and a request identification are settled in the record of said conversion table and an ICS network address of an ICS network server is registered to be defined as a receiving ICS network address,

when an ICS user frame is inputted from said ICS logic terminal, an ICS network address assigned to said ICS logic terminal is held as a transmitting ICS network address,

detecting a receiver ICS user address in said ICS user frame to be coincided with said ICS user address of said conversion table,

when the coincidence is detected, said ICS user frame is converted into an ICS network frame by using said held transmitting ICS network address and said registered receiving ICS network address, and

said ICS network frame is transferred in an inner ICS network communication line under a rule of said ICS network address system ADS and is reached at said ICS network server.

33. (Previously Presented) An integrated information communication system in which:

an ICS network communication line for transferring an ICS network frame is exclusively determined between an access control apparatus on a sending side and an access control apparatus on a receiving side, when an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line and when set of an ICS logic terminal

identification information on a sending side, a sender ICS user address and a receiver ICS user address is determined;

the ICS network address for determining a destination of the ICS network frame for specifying the ICS network communication line is specified by a conversion table in the access control apparatus and by a relay table in a relay apparatus;

an external ICS user frame having a specific ICS user address system ADX is inputted to the access control apparatus on the sending side from the user communication line through the ICS logic terminal;

the ICS user frame is converted into an internal ICS network frame having an ICS network address system ADS, when it is found that the information for identifying the ICS logic terminal to which the ICS user frame is inputted as well as the sender ICS user address and the receiver ICS user address included in the ICS user frame are registered in a record of the conversion table in the access control apparatus;

the ICS network frame includes a network control field;

the network control field stores at least the ICS network address for specifying the ICS network communication line; and

the ICS user frame is reconstituted from the ICS network frame, is transferred on another user communication line through the ICS logic terminal of the access control apparatus on the receiving side, and arrives at another external information communication equipment, when the destination of the ICS network frame is determined by the conversion table in the access control apparatus and by the relay table in the relay apparatus according to a rule of the ICS network address system ADS, and the ICS network frame is transmitted through the ICS network communication line and has arrived at the access control apparatus on the receiving side.

34. (Previously Presented) An integrated information communication system according to Claim 33, wherein the conversion table includes a priority, the ICS network frame includes a priority obtained from the conversion table, and the ICS network frame is sent by the relay apparatus according to the priority of the ICS network frame.

35. (Previously Presented) An integrated information communication system according to Claim 33, wherein the conversion table has two or more records, set of the ICS network address for specifying the ICS network communication line, for each of the records, differs from the set of the same ICS logic terminal identification information, the sender ICS user address and the receiver ICS user address, and a destination which the ICS user frame arrives at is varied by changing the receiver ICS user address.

36. (Previously Presented) An integrated information communication system according to Claim 33, wherein intra-corporation communication and inter-corporation communication are executed depending upon whether the sender ICS user address and the receiver ICS user address registered in the conversion table are both addresses for intra-corporation communication or addresses for inter-corporation communication.

37. (Previously Presented) An integrated information communication system in which:  
an ICS network communication line for transferring an ICS network frame is determined, when an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line and when an identification information of the ICS logic terminal to which the ICS user frame is inputted is determined;

an ICS network address for specifying the ICS network communication line is registered as a record of a conversion table of an access control apparatus, and a request of identification is registered in the record as a virtual dedicated line;

an external ICS user frame having a specific ICS user address system ADX is inputted to the access control apparatus from the user communication line through the ICS logic terminal;

the ICS user frame is converted into an internal ICS network frame having an ICS network address system ADS, when it is found that the request of identification is registered, as a virtual dedicated line, in the record of the conversion table that includes the ICS logic terminal identification information;

the ICS network frame includes a network control field;

the network control field stores at least the ICS network address for specifying the ICS network communication line; and

the ICS user frame is reconstituted from the ICS network frame, transferred to another user communication line through the ICS logic terminal of the access control apparatus on the receiving side and arrives at another external information communication equipment, when the destination of the ICS network frame is determined by the conversion table in the access control apparatus and by the relay table in the relay apparatus according to a rule of the ICS network address system ADS, and the ICS network frame is transmitted through the ICS network communication line and has arrived at the access control apparatus on the receiving side.

38. (Previously Presented) An integrated information communication system according to Claim 33, wherein the record of the conversion table includes a request of identification indicating intra-corporation communication/inter-corporation communication, processing related to the record is not executed when the request of identification is registered, as a virtual dedicated line, in the record of the conversion table that includes the ICS logic terminal to which the ICS user frame is inputted, and the ICS user frame is converted into the ICS network frame when it is found that the request of identification is the intra-corporation communication/inter-corporation communication.

39. (Previously Presented) An integrated information communication system in which:  
an ICS network communication line for transferring the ICS network frame is determined when there is determined set of an identification information of ICS logic terminal, a sender ICS user address (inter-corporation) and a receiver ICS user address (inter-corporation);

the ICS network address for specifying the ICS network communication line is registered in a record of a conversion table of an access control apparatus;

the sender ICS user address (intra-corporation) is registered in the record of the conversion table corresponding to the sender ICS user address (inter-corporation) and a conversion table includes a request of identification meaning the inter-corporation communication;

the sender ICS user address in the ICS user frame is changed to the sender ICS user address (inter-corporation) to be registered at the record of the conversion table and then the ICS user frame is converted into an internal ICS network frame having an ICS network address system ADS, when it is found that set of information for identifying the ICS logic terminal inputted by the ICS user frame, the sender ICS user address and the receiver ICS user address in the ICS user frame is registered at a record of the conversion table as the information for identifying the ICS logic terminal, the sender ICS user address (intra-corporation) and the receiver ICS user address (inter-corporation);

the ICS network frame includes a network control field;

the network control field stores at least the ICS network address for specifying the ICS network communication line; and

the ICS user frame is reconstituted from the ICS network frame, is transferred to another user communication line through the ICS logic terminal of the access control apparatus on the receiving side, and arrives at another external information communication equipment, when the destination of the ICS network frame is determined by the conversion table in the access control apparatus and by the relay table in the relay apparatus according to a rule of the ICS network address system ADS, and the ICS network frame is transmitted through the ICS network communication line and has arrived at the access control apparatus on the receiving side.

40. (Previously Presented) An integrated information communication system according to Claim 33, further having an ICS network server which comprises a processor and an ICS network data base, wherein a result held therein is to be returned back for a request from the access control apparatus, or when no answer held for the question from the access control apparatus, a communication is made with other ICS network server by using an ICS network server communication function to obtain an answer and the result is sent back to the access control apparatus issued the question.

41. (Previously Presented) An integrated information communication system according to Claim 40, further including an address administration server having a correspondence table in which the



processor is corresponded to a relationship between the ICS network address and the ICS user addresses.

42. (Previously Presented) An integrated information communication system according to Claim 40, further having an ICS name server including the processor and an ICS name conversion table with the function which receives a presentation of an ICS name from the access control apparatus, obtains an ICS user address therefor from the ICS name conversion table, and informs the access control apparatus of the obtained result, and the address administration server writing at least the ICS user address and the ICS network address onto the conversion table, and returning the ICS user address corresponding to the ICS name to the user.

43. (Previously Presented) An integrated information communication system according to Claim 42, further having an ICS name server including the processor and an ICS name conversion table with the function which receives a presentation of an ICS name from the access control apparatus, obtains an ICS user address therefor from the ICS name conversion table, and informs the access control apparatus of the obtained result, and the address administration server writing at least the ICS user address and the ICS network address onto a temporary conversion table, and returning the ICS user address corresponding to the ICS name to the user.

44. (Previously Presented) An integrated information communication system according to claim 42, further including the processor and an ICS name conversion table, and having the function which receives a presentation of an ICS name from the access control apparatus, obtains an ICS user address therefor from the ICS name conversion table, informs the access control apparatus of the obtained result, and returns the ICS user address corresponding to the ICS name to the user.

45. (Previously Presented) An integrated information communication system according to Claim 35, having a function in which, upon receipt of an ICS user frame, the access control apparatus reads the kind of an accounting system for each ICS frame held in the conversion table based on an ICS

user address included in the ICS user frame, generates an accounting information when the kind that is read out is a value representing a quantity-proportional accounting system, informs an accounting server of the accounting information as an accounting information frame, and, when the content that is read out is a value representing a flat rate system, does not form the accounting information and does not inform the accounting server of the accounting information as an accounting information frame.

46. (Previously Presented) An integrated information communication system according to Claim 35, wherein at least an access control apparatus is placed on the outside and a superior access control apparatus management server is placed on the inside, in order to execute the intra-corporation communication or the inter-corporation communication.

47. (Previously Presented) An integrated information communication system according to Claim 35, wherein the access control apparatus has an encryption means and a decryption means, the ICS user frame is converted into a cipher text through the encryption means and is transmitted inside the ICS when the ICS is being encapsulated and, when the ICS is decapsulated, the ICS user frame that is converted into the cipher text is returned back to the initial ICS user frame through the decryption means.

48. (Previously Presented) An integrated information communication system according to Claim 35, wherein the access control apparatus is functionally divided into an aggregated access control apparatus and a simple access control apparatus, the user is connected to the simple access control apparatus, the conversion table is divided into an aggregated conversion table in the aggregated access control apparatus and a simple conversion table in the simple access control apparatus, the ICS encapsulation and the ICS decapsulation are executed by the simple access control apparatus, and the accounting and an electronic signature are executed by the aggregated access control apparatus.

49. (Previously Presented) An integrated information communication system according to Claim 35, further having user service servers, ICS authority servers and conversion table servers each in plural numbers, wherein a request of ICS subscription is received by the user service servers, the ICS authority servers assign the ICS user addresses, ICS network addresses and ICS names, and the conversion table servers rewrite the conversion table in the access control apparatus.

50. (Previously Presented) An integrated information communication system according to Claim 35, wherein an ICS operator gives an instruction to the superior user service server, to the superior resource administration server and to the superior passage information server to operate them upon being informed of data separately.

51. (Previously Presented) An integrated information communication system according to Claim 35, wherein a telephone line conversion unit in the access control apparatus is connected to a telephone through a telephone line to execute the communication by voice using the telephone.

52. (Previously Presented) An integrated information communication system according to Claim 35, wherein a person who has received ICS buries an encryption function and data related to the encryption in the roaming terminal, and the encryption function is selected by changing parameters.

53. (Previously Presented) An integrated information communication system according to Claim 35, wherein an ICS user address and an ICS network address of an opponent with whom the communication is to be made are obtained by using the telephone number as an ICS domain name, and the ICS network address is held in the conversion table in the access control apparatus on a calling side.

54. (Previously Presented) An integrated information communication system according to Claim 53, wherein an ICS user address and an ICS network address of an opponent with whom the

communication is to be made are obtained by using the telephone number as the ICS domain name, and the digitized voice is included on the ICS user frame.

55. (Previously Presented) An integrated information communication system in which:

an ICS network communication line for transferring an ICS network frame is exclusively determined between an access control apparatus on a sending side and an access control apparatus on a receiving side, when an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line and when set of an ICS logic terminal identification information on a sending side and a receiver ICS user address is determined;

the ICS network address for determining a destination of the ICS network frame for specifying the ICS network communication line is specified by a conversion table in the access control apparatus and by a relay table in a relay apparatus;

an external ICS user frame having a specific ICS user address system ADX is inputted to the access control apparatus on the sending side from the user communication line through the ICS logic terminal;

the ICS user frame is converted into an internal ICS network frame having an ICS network address system ADS, when it is found that the information for identifying the ICS logic terminal to which the ICS user frame is inputted as well as the receiver ICS user address in the ICS user frame are registered in a record of the conversion table in the access control apparatus;

the ICS network frame includes a network control field;

the network control field stores at least the ICS network address for specifying the ICS network communication line;

the ICS user frame is reconstituted from the ICS network frame, is transferred on another user communication line through the ICS logic terminal of the access control apparatus on the receiving side, and arrives at another external information communication equipment, when the destination of the ICS network frame is determined by the conversion table in the access control apparatus and by the relay table in the relay apparatus according to a rule of the ICS network address system ADS, and

the ICS network frame is transmitted through the ICS network communication line and has arrived at the access control apparatus on the receiving side;

an ICS network communication line is set in the conversion table of the access control apparatus and in the relay table in the relay unit to which the each user communication line is connected for transmitting and receiving the ICS user frames between a user 1 having a value of the ICS user address and another user 2 having another value of the ICS user address;

an ICS network communication line is set in the conversion table of the access control apparatus and in the relay table in the relay apparatus to which the each user communication line is connected for transmitting and receiving the ICS user frames between another user m and the user 1 or 2;

an ICS network communication line is set in the conversion table of the access control apparatus and in the relay table in the relay apparatus to which the each user communication line is connected for transmitting and receiving the ICS user frames between another user n and the user 1, 2 or m; and

a closed network is defined and included in the ICS to transmit and receive the ICS user frame among the users 1, 2, m and n as a set of all ICS network communication lines.

56. (Previously Presented) An integrated information communication system in which:

a receiving ICS network address is exclusively determined and is registered as a record of the conversion table, when an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line and when set of an ICS logic terminal identification information and a receiver ICS user address is determined;

the ICS user frame is converted into the ICS network frame when it is found that the ICS logic terminal identification information inputted by the ICS user frame and the receiver ICS user address included in the ICS user frame are registered at the record in the conversion table of the access control apparatus;

an external ICS user frame having a specific ICS user address system ADX is converted into an internal ICS network frame being administrated by the conversion table after being inputted to the

access control apparatus on the sending side from the user communication line through the ICS logic terminal;

the ICS network frame is transmitted through the inside according to a rule of the ICS network address system ADS;

the ICS user frame is reconstituted from the ICS network frame, transferred on another user communication line through the ICS logic terminal of the access control apparatus on the receiving side and arrives at another external information communication equipment, when the ICS network frame is arrived at the access control apparatus on the receiving side;

a record for transmitting and receiving the ICS user frame is set to the conversion tables in the access control apparatus to which the user communication line of a user 1 is connected and in another access control apparatus to which the user communication line of a user 2 is connected between the user 1 having a value of the ICS user address and another user 2 having another value of ICS user address;

a record is set to the conversion table in the access control apparatus to which the user communication lines are connected between another user m and the user 1 or 2, permitting the user m to transmit and receive the ICS user frame to and from the user 1 or 2;

a record for transmitting and receiving the ICS user frame is set to the conversion table in the access control apparatus to which the user communication lines are connected between another user n and the user 1, 2 or m; and

a closed network for transmitting and receiving the ICS user frame is defined and included in the ICS among the users 1, 2, m and n only as a set of all records.

57. (Previously Presented) An integrated information communication system in which a closed network X and another closed network Y are determined by the method of Claim 55, and the ICS user frame is not transmitted or received between a user x belonging to the closed network X and a user y belonging to the closed network Y, the closed networks being included in a number of 2 or more.

58. (Previously Presented) An access control apparatus in which:

an ICS network address for identifying an ICS logic terminal is imparted to the ICS logic terminal of an access control apparatus at an end of a user communication line;

a first rule is such that the identification information of the ICS logic terminal that is determined is registered as a record of a conversion table so as to exclusively determine the terminating ICS network address, and a request of identification is registered at the record as a virtual dedicated line;

a second rule is such that set of the identification information of the ICS logic terminal and the receiver ICS user address that is determined, is registered as the record of the conversion table so as to exclusively determine the terminating ICS network address, and a request of identification is registered at the record as intra-corporation communication;

the conversion table has two or more records, and the destination which the ICS user frame arrives at is changed by changing the receiver ICS user address for the same ICS logic terminal identification information;

the ICS user frame is converted into an ICS network frame by using the terminating ICS network address obtained according to the first rule when the ICS user frame is inputted from the ICS logic terminal, the record of the conversion table inclusive of the ICS logic terminal identification information is found, and the request for identification is registered as a virtual dedicated line;

when the request for identification is registered as the intra-corporation communication, the second rule is such that the ICS user frame is converted into the ICS network frame when it is found that the identification information of the ICS logic terminal inputted by the ICS user frame and the receiver ICS user address in the ICS user frame are registered at the record of the conversion table;

then, when neither the procedure by the first rule nor the procedure by the second rule holds, or when it is not found that the set of the identification information of the ICS logic terminal to which the ICS user frame is inputted and the receiver ICS user address in the ICS user frame, has been registered as a record of the conversion table; it is judged whether the receiver ICS user address in the ICS user frame is a section of the inter-corporation communication address, and when it is the section of the inter-corporation communication address, the ICS user frame is directly used as the

ICS network frame, while the receiving network address in the ICS network frame is the receiver ICS user address in the ICS user frame;

the ICS user frame is reconstituted from the ICS network frame when the ICS network frame is transmitted passing through at least one or more relay apparatuses and arrives at another access control apparatus; and

when the receiving network address in the ICS network frame is an inter-corporation communication address section, the ICS network frame is directly used as the ICS user frame, and the ICS user frame is transmitted to another external information communication equipment to carry out the virtual dedicated line, intra-corporation communication and inter-corporation communication.

59. (Previously Presented) An integrated information communication system in which:

an ICS network address for identifying an ICS logic terminal is imparted to the ICS logic terminal at an end of a user communication line, an ICS network address of an ICS network server is registered so as to be exclusively determined as a receiving ICS network address upon simply determining a receiver ICS user address on a record of the conversion table, and a request of identification meaning a special ICS number is registered onto the record; and

when an ICS user frame is inputted through the ICS logic terminal, the ICS network address imparted to the ICS logic terminal is held as an originating ICS network address, whereby it is detected whether the receiver ICS user address in the ICS user frame is in agreement with the receiver ICS user address in the record of the conversion table, and when they are in agreement, the ICS user frame is converted into an ICS network frame by using the originating ICS network address that is held and the receiving ICS network address registered in the record, the ICS network frame being transmitted through the internal ICS network communication line according to the rule of the ICS network address system ADS so as to arrive at the ICS network server.

60. (Previously Presented) An integrated information communication system in which:

two or more access control apparatuses and one or more relay apparatuses are included, an ICS network server is included, which are directly or indirectly connected together through an ICS



network communication line, plural IP terminals of the external users of the integrated information communication system are connected to any one of the access control apparatus through the user communication lines, an ICS network address is imparted to the ICS logic terminal to identify the ICS logic terminal at an end of each of the user communication lines, and the ICS network addresses are imparted to identify the relay apparatus and the ICS network server;

the access control apparatus, the relay apparatus and the ICS network server are allowed to exchange the information upon transmitting and receiving the ICS network frame by using the ICS network address;

an external ICS user frame having an ICS user address system ADX is converted into the ICS network frame being administrated by the conversion table in the access control apparatus, the ICS network frame is constituted by a network control field and a network data field, the network control field includes at least an address that complies with the ICS network address system ADS, the ICS network frame is transmitted according to a rule of the ICS network address system through at least one or more relay apparatuses;

when set of an ICS logic terminal identification information and a receiver ICS user address is determined, an ICS network address stored in the network control field of the ICS network frame formed by the access control apparatus by conversion is registered as a record of the conversion table so as to be exclusively determined, and the ICS user frame is converted into the ICS network frame when it is found that the identification information of the ICS logic terminal inputted by the ICS user frame and the receiver ICS user address in the ICS user frame are registered in the record of the conversion table;

number of the records is two or more, set of the receiver ICS user address and the ICS network address stored in the network control field is different for each of the records for the same ICS logic terminal identification information, and the destination at which the ICS user frame arrives is changed by changing the receiver ICS user address in the ICS user frame inputted through the same ICS logic terminal; and

only an ICS user frame registered as a record of the conversion table is transferred to collect communication fees depending upon the transfer of the ICS user frame.

61. (Previously Presented) An integrated information communication system according to Claim 60, wherein:

when the ICS network address on a sending side is determined, the ICS network address stored in the network control field is registered as a record of the conversion table so as to be exclusively determined and the record is registered as a virtual dedicated line;

the ICS user frame is converted into the ICS network frame when it is found that the ICS user frame is registered as a virtual dedicated line in the record of the conversion table that includes an identification information of the ICS logic terminal to which the ICS user frame is inputted; and

in a state where the virtual dedicated line is not registered, the ICS user frame is converted into the ICS network frame when it is found that the identification information of the ICS logic terminal to which the ICS user frame is inputted and the receiver ICS user address in the ICS user frame are registered in the record of the conversion table.

62. (Previously Presented) An integrated information communication system in which an ICS network address of an internal ICS network frame is determined based on an ICS logic terminal on a sending side and the ICS user address imparted to a sender ICS user frame, and an ICS logic terminal on a receiving side to which a sender ICS network frame is to be transmitted is determined based on the thus determined ICS network address.

63. (Previously Presented) An integrated information communication system in which an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line, and an ICS network communication line for transferring an ICS network frame is determined between a first access control apparatus on a sending side and a second access control apparatus on a receiving side when there is determined a set of an ICS logic terminal identification information of a sending side and a receiver ICS user address.

64. (Previously Presented) An integrated information communication system in which an external ICS user frame having a specific ICS user address system ADX is converted into an internal ICS

6 network frame having an ICS network address system ADS being administrated by a conversion table in an access control apparatus; the ICS network frame includes a network control field and a network data field; the network control field stores an address that complies with the ICS network address system ADS; the network data field includes an ICS user frame which is transmitted according to a rule of the ICS network address system ADS through at least one or more relay apparatuses; the ICS user frame is reconstituted from the ICS network frame and is transferred to other external information communication equipment; a receiving ICS network address is registered as a record of the conversion table so as to be exclusively determined, when the ICS network address is imparted to the ICS logic terminal at an end of a user communication line, and when there is determined a set of an ICS logic terminal identification information of a sending side and a receiver ICS user address; and the ICS user frame is converted into the ICS network frame when it is found that the identification information of the ICS logic terminal to which the ICS user frame is inputted and the receiver ICS user address in the ICS user frame are registered in the record of the conversion table.

65. (Previously Presented) An integrated information communication system according to any one of Claims 62, wherein a telephone communication is accomplished by transmitting and receiving an ICS user frame storing digitized voice between an external IP telephone and another IP telephone in the integrated information communication system.

66. (Previously Presented) An integrated information communication system according to Claim 35, wherein a telephone communication is accomplished by transmitting and receiving an ICS user frame storing digitized voice between an external IP telephone and another IP telephone in the integrated information communication system.

67. (Previously Presented) An integrated information communication system according to Claim 35, wherein the conversion table server forms new items of the conversion table inclusive of ICS network addresses and ICS user addresses obtained by inquiring the domain name server based on the telephone numbers.

68. (Previously Presented) An integrated information communication method in which a closed network X is determined by a method of Claim 55, and the closed network X is identified from a value of the ICS network address by utilizing the property of the ICS network address stored in the network control field for determining the closed network as a set of the ICS network communication lines.

69. (Previously Presented) An integrated information communication method in which a closed network X is determined by a method of Claim 56, and the closed network X is identified from a value of the record by utilizing the property for determining the closed network as a set of records of conversion table in the access control apparatus.

70. (Previously Presented) An integrated information communication system according to Claim 63, wherein a priority is registered in the conversion table in the access control apparatus on the sending side, the ICS network frame includes a priority obtained from the conversion table, and the ICS network frame is sent by the relay apparatus according to the priority.

71. (Previously Presented) An integrated information communication system according to Claim 35, wherein a speed class is imparted to the ICS network communication line, and the ICS network frame onto which the speed class is written is sent from the relay apparatus onto the ICS network communication line depending upon the speed class.

72. (Previously Presented) An access control apparatus which comprising:  
a conversion table including a record in which a receiving ICS network address is registered so as to be exclusively determined when there is determined a set of an originating ICS network address, a sender ICS user address and a receiver ICS user address;

a sending side function of receiving an ICS user frame inputted to the ICS logic terminal and an ICS network address imparted to the ICS logic terminal to which the ICS user frame is inputted and converting the ICS user frame into an ICS network frame which is sent onto an ICS network

communication line when it is found that the ICS network address, the sender ICS user address and the receiver ICS user address included in the ICS user frame are registered in the record of the conversion table; and

a receiving side function of reconstituting the ICS user frame from the ICS network frame and sending it from the ICS logic terminal on the receiving side onto the user communication line.

73. (Previously Presented) An access control apparatus which comprising:

a conversion table including a record in which a receiving ICS network address is registered so as to be exclusively determined when there is determined a set of an originating ICS network address and a receiver ICS user address;

a sending side function of receiving an ICS user frame inputted to the ICS logic terminal and an ICS network address imparted to the ICS logic terminal to which the ICS user frame is inputted and converting the ICS user frame into an ICS network frame which is sent onto an ICS network communication line when it is found that the ICS network address and the receiver ICS user address included in the ICS user frame are registered in the record of the conversion table; and

a receiving side function of reconstituting the ICS user frame from the ICS network frame and sending it from the ICS logic terminal on the receiving side onto the user communication line.

74. (Previously Presented) An access control apparatus in which an ICS network address of an internal ICS network frame is determined based on an ICS logic terminal of a sending side and an ICS user address imparted to an external sending ICS user frame, and an ICS logic terminal on a receiving side to which a sending ICS network frame is to be transmitted is determined based on the thus determined ICS network address.

75. (Previously Presented) An access control apparatus in which an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line, and an ICS network communication line for transferring an ICS network frame is determined between a first access control apparatus on a sending side and a second access control

apparatus on a receiving side when there is determined a set of an ICS logic terminal identification information of the sending side and a receiver ICS user address.

76. (Previously Presented) An access control apparatus according to Claim 72, wherein the receiving side function is reconstituting the ICS user frame from the ICS network frame and sending it from the ICS logic terminal on the receiving side onto the user communication line only when it is found that the ICS network address and the receiver ICS user address included in the ICS network frame are registered in the record of the conversion table, and of discarding the ICS network frame in other cases.

77. (Previously Presented) An access control apparatus according to any one of Claims 72, wherein a speed class is registered in the conversion table, and the speed class is written into the ICS network frame.

78. (Previously Presented) An access control apparatus according to any one of Claims 72, wherein a priority is registered in the conversion table, and the priority is written into the ICS network frame.

79. (Previously Presented) An access control apparatus according to any one of Claims 72, wherein a priority is registered in the conversion table, and the order of sending the ICS network frames onto the ICS network communication line is determined according to the priority.

80. (Previously Presented) An access control apparatus according to any one of Claims 72, wherein a priority is registered in the conversion table, and the order of sending the reconstituted ICS user frames onto the user communication line is controlled according to the priority.

81. (Previously Presented) An access control apparatus according to any one of Claims 72, further including an electronic signature unit, and having the function by which, for transmitting the

data, an electronic signature is imparted to the ICS user frame according to the instruction of the signature at the time of transmission registered in the conversion table and for receiving the data, the electronic signature is imparted to the ICS user frame according to the instruction of the signature at the time of reception registered in the conversion table.

82. (Previously Presented) An access control apparatus according to any one of Claims 72, further having an encryption means and a decryption means, and having the function by which, for transmitting the data, the ICS user frame is encrypted according to an encryption class registered in the conversion table, then converted into an ICS network frame and is sent onto the ICS network communication line, and for receiving the data, the ICS network frame is reconstituted, and the encrypted ICS user frame is decrypted to obtain the ICS user frame which is then sent from the ICS logic terminal on the receiving side onto the user communication line.

83. (Previously Presented) An access control apparatus according to any one of Claims 72, wherein an accounting class is registered in the conversion table.

84. (Previously Presented) An access control apparatus according to any one of Claims 72, further including a telephone line converting unit, and having a function which inputs an ICS user frame from a telephone line, changes to an ICS network frame and sends it to an ICS network communication line as a sending side function, and which sends an ICS user frame obtained by changing the ICS network frame inputted from the ICS network communication line to the telephone line as a receiving side function.

85. (Previously Presented) An access control apparatus according to any one of Claims 72, further including an ISDN line converting unit, and having a function which inputs an ICS user frame from an ISDN line, changes to an ICS network frame and sends it to an ICS network communication line as a sending side function, and which sends an ICS user frame obtained by changing the ICS

network frame inputted from the ICS network communication line to the ISDN line as a receiving side function.

86. (Previously Presented) An access control apparatus according to any one of Claims 72, further including a CATV line converting unit, and having a function which inputs an ICS user frame from a CATV line, changes to an ICS network frame and sends it to an ICS network communication line as a sending side function, and which sends an ICS user frame obtained by changing the ICS network frame inputted from the ICS network communication line to the CATV line as a receiving side function.

87. (Previously Presented) An access control apparatus according to any one of Claims 72, further including a satellite line converting unit, and having a function which inputs an ICS user frame from a satellite line, changes to an ICS network frame and sends it to an ICS network communication line as a sending side function, and which sends an ICS user frame obtained by changing the ICS network frame inputted from the ICS network communication line to the satellite line as a receiving side function.

88. (Previously Presented) An access control apparatus according to any one of Claims 72, further including a cellular phone line converting unit, and having a function which inputs an ICS user frame from a cellular phone line, changes to an ICS network frame and sends it to an ICS network communication line as a sending side function, and which sends an ICS user frame obtained by changing the ICS network frame inputted from the ICS network communication line to the cellular phone line as a receiving side function.

89. (Previously Presented) An access control apparatus having an ATM/ICS network frame converting unit for converting an ICS network frame into an ATM cell and for inversely converting the ATM cell into the ICS network frame, wherein an ICS user frame inputted from the user communication line having an IP transfer function is converted into an ICS network frame which is,



then, converted into an ATM cell and is sent onto the ATM communication line, and the ATM cell inputted from the ATM communications line is converted into an ICS network frame which is, then, converted into an ICS user frame and is transferred onto the user communication line.

61 90. (Previously Presented) An ATM exchanger having a function for converting an ICS user frame into an ICS network frame and for inversely converting the ICS network frame into the ICS user frame, wherein an ICS user frame inputted from the user communication line having an IP transfer function is converted into an ICS network frame which is, then, converted into an ATM cell and is sent onto the ATM communication line, and the ATM cell inputted from the ATM communication line is converted into the ICS network frame which is, then, converted into the ICS user frame and is transferred onto the user communication line.

91. (Previously Presented) An IP telephone having at least an IP address accumulating unit, a voice input/output unit and a voice data transmitting/receiving unit, wherein an ICS user frame inclusive of a telephone number of a destination telephone is formed and is sent onto the ICS user communication line, an ICS user frame storing the ICS user address of the destination telephone is received from the ICS user communication line, voice is inputted through the voice input/output unit and is converted into digital voice through the voice data transmitting/receiving unit, stored in the ICS user frame and is transmitted to the destination telephone and, then, the ICS user frame is transmitted and received to execute a telephone communication.

92. (Previously Presented) An IP terminal having a function for forming, transmitting and receiving ICS domain name and ICS user address of an IP terminal, an ICS user address of a registered server, an encryption function and data related to encryption, and an ICS user frame, wherein the user of the IP terminal connects the IP terminal to a position of a home IP terminal, and the IP terminal forms an ICS user frame which includes at least the ICS domain name and ICS user address of the IP terminal, sends it onto the user communication line, and receives the ICS user frame that includes a report of registration.

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93. (Previously Presented) An IP terminal according to Claim 92, wherein the IP terminal further has an ICS user address for a roaming terminal and an ICS user address of a connection server, inputs at least the ICS domain name of the remote person and a password specific to the IP terminal, by using the encryption function and the data related to encryption, forms an ICS user frame including the ICS domain name of the IP terminal and the ICS domain name of the remote person, sends the ICS user frame onto the user communication line, receives, from the user communication line, the ICS user frame including an ICS user address for the IP terminal corresponding to the ICS domain name of the IP terminal in a one-to-one manner and an ICS user address for the remote person corresponding to the ICS domain name of the IP terminal of the remote person in a one-to-one manner, and transmits and receives the ICS user frame by using the ICS user address for the IP terminal that is obtained and the ICS user address for the remote person.

94. (Previously Presented) An access control apparatus according to Claim 58, wherein a record according to the first rule is not included in the conversion table, and the intra-corporation communication and the inter-corporation communication are executed.

95. (Previously Presented) An integrated information communication system in which:  
an ICS network address for identifying an ICS logic terminal is imparted to the ICS logic terminal of an access control apparatus at an end of a user communication line;

a first rule is such that an identification information of the ICS logic terminal that is determined is registered as a record of a conversion table so as to exclusively determine a receiving ICS network address, and a request of identification is registered at a record as a virtual dedicated line;

a second rule is such that a set of the identification information of the ICS logic terminal and the receiver ICS user address that is determined, is registered as a record of a conversion table so as to exclusively determine the receiving ICS network address, and a request of identification is registered at the record as intra-corporation communication;

the conversion table has two or more records, and the destination which the ICS user frame arrives at is changed by changing the receiver ICS user address for the same ICS logic terminal identification information;

the ICS user frame is converted into an ICS network frame by using the receiving ICS network address obtained according to the first rule when the ICS user frame is inputted from the ICS logic terminal, the record of the conversion table inclusive of the ICS logic terminal discrimination information is found, and the request for identification is registered as the virtual dedicated line;

when the request for identification is registered as the intra-corporation communication, the second rule is such that the ICS user frame is converted into the ICS network frame when it is found that the identification information of the ICS logic terminal inputted by the ICS user frame and the receiver ICS user address in the ICS user frame are registered at the record of the conversion table;

next, when neither the procedure by the first rule nor the procedure by the second rule holds, or when it is not found that the set of the identification information of the ICS logic terminal inputted by the ICS user frame and the receiver ICS user address in the ICS user frame are registered as a record of the conversion table;

it is judged whether the receiver ICS user address in the ICS user frame is a section of the inter-corporation communication address, and when it is the section of the inter-corporation communication address, the ICS user frame is directly used as the ICS network frame, while the receiving network address in the ICS network frame is the receiver ICS user address in the ICS user frame;

the ICS user frame is reconstituted from the ICS network frame when the ICS network frame is transmitted passing through at least one or more relay apparatuses and arrives at another access control apparatus; and

when the receiving network address in the ICS network frame is an inter-corporation communication address section, the ICS network frame is directly used as the ICS user frame, and the ICS user frame is transmitted to other external information communication equipment to carry out the virtual dedicated line, intra-corporation communication and inter-corporation communication.

96. (Previously Presented) An integrated information communication system according to Claim 95, wherein a record according to the first rule is not included in the conversion table, and the intra-corporation communication and the inter-corporation communication are executed.

97. (Previously Presented) An integrated information communication system in which:  
an ICS network communication line for transferring an ICS network frame is exclusively determined between an access control apparatus on a sending side and an access control apparatus on a receiving side, when an ICS network address for identifying an ICS logic terminal is imparted to an ICS logic terminal at an end of a user communication line and when set of an ICS logic terminal identification information on an originating side and a receiver ICS user address is determined;

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the ICS network address for determining a destination of the ICS network frame for specifying the ICS network communication line is specified by a conversion table in the access control apparatus and by a relay table in a relay apparatus;

an external ICS user frame having a specific ICS user address system ADX is inputted to the access control apparatus on the sending side from the user communication line through the ICS logic terminal;

the ICS user frame is converted into an internal ICS network frame having an ICS network address system ADS, when it is found that the information for identifying the ICS logic terminal to which the ICS user frame is inputted and the receiver ICS user address in the ICS user frame are registered in a record of the conversion table in the access control apparatus;

the ICS network frame includes a network control field;

the network control field stores at least the ICS network address for specifying the ICS network communication line; and

the ICS user frame is reconstituted from the ICS network frame, is transferred on another user communication line through the ICS logic terminal of the access control apparatus of the receiving side, and arrives at another external information communication equipment, when the destination of the ICS network frame is determined by the conversion table in the access control apparatus and by the relay table in the relay apparatus according to a rule of the ICS network address

system ADS, and the ICS network frame is transmitted through the ICS network communication line and has arrived at the access control apparatus on the receiving side.

98. (Previously Presented) An integrated information communication system according to Claim 97, wherein the conversion table includes a priority, the ICS network frame includes a priority obtained from the conversion table, and the ICS network frame is sent by the relay apparatus according to the priority of the ICS network frame.

99. (Previously Presented) An integrated information communication system according to Claim 97, wherein the conversion table has two or more records, set of the ICS network address for specifying the ICS network communication line, for each of the records, differs from the set of the ICS logic terminal identification information and the receiver ICS user address, and a destination which the ICS user frame arrives at is varied by changing the receiver ICS user address.

100. (Previously Presented) An integrated information communication system according to Claim 97, wherein intra-corporation communication and inter-corporation communication are executed depending upon whether the receiver ICS user address registered in the conversion table are address for intra-corporation communication or address for inter-corporation communication.

101. (Previously Presented) An integrated information communication system according to Claim 33, wherein the record of the conversion table includes a request of identification indicating intra-corporation communication/inter-corporation communication, processing related to the record is not executed when the request of identification is registered, as a virtual dedicated line, in the record of the conversion table that includes the ICS logic terminal to which the ICS user frame is inputted, and the ICS user frame is converted into the ICS network frame when it is found that the request of identification is the intra-corporation communication/inter-corporation communication.

102. (Previously Presented) An integrated information communication system according to Claim 97, further having an ICS network server which comprises a processor and an ICS network data base, wherein when a result held therein is to be returned back for a request from the access control apparatus, or when no answer is returned back for the question from the access control apparatus, a communication is made with other ICS network server by using an ICS network server communication function to obtain an answer, and the result is sent back to the access control apparatus that has issued the question.

103. (Previously Presented) An integrated information communication system according to Claim 97, having a function in which, upon receipt of an ICS user frame, the access control apparatus reads the kind of an accounting system for each ICS frame held in the conversion table based on an ICS user address included in the ICS user frame, generates an accounting information when the kind that is read out is a value representing a quantity-proportional accounting system, informs an accounting server of the accounting information as an accounting information frame, and, when the content that is read out is a value representing a flat rate system, does not form the accounting information and does not inform the accounting server of the accounting information as an accounting information frame.

104. (Previously Presented) An integrated information communication system according to Claim 97, wherein at least an access control apparatus is placed on the outside and a generalized access control apparatus management server is placed on the inside, in order to execute the intra-corporation communication or the inter-corporation communication.

105. (Previously Presented) An integrated information communication system according to Claim 97, wherein the access control apparatus has an encryption means and a decryption means, the ICS user frame is converted into a cipher text through the encryption means and is transmitted inside the ICS when the ICS is being encapsulated and, when the ICS is decapsulated, the ICS user frame that

is converted into the cipher text is returned back to the initial ICS user frame through the decryption means.

106. (Previously Presented) An integrated information communication system according to Claim 97, wherein the access control apparatus is functionally divided into an aggregated access control apparatus and a simple access control apparatus, the user is connected to the simple access control apparatus, the conversion table is divided into an aggregated conversion table in the aggregated access control apparatus and a simple conversion table in the simple access control apparatus, the ICS encapsulation and the ICS decapsulation are executed by the simple access control apparatus, and the accounting and an electronic signature are executed by the aggregated access control apparatus.

107. (Previously Presented) An integrated information communication system according to Claim 97, further having user service servers, ICS authority servers and conversion table servers each in plural numbers, wherein a request of ICS subscription is received by the user service servers, the ICS authority servers assign the ICS user addresses, ICS network addresses and ICS names, and the conversion table servers rewrite the conversion table in the access control apparatus.

108. (Previously Presented) An integrated information communication system according to Claim 97, wherein an ICS operator gives an instruction to the generalized user service server, to the generalized resource administration server and to the generalized passage information server to operate them upon being informed of data separately.

109. (Previously Presented) An integrated information communication system according to Claim 97, wherein a telephone line conversion unit in the access control apparatus is connected to a telephone through a telephone line to execute the communication by voice using the telephone.

110. (Previously Presented) An integrated information communication system according to Claim 97, wherein a person who has received ICS buries an encryption function and data related to the encryption in the roaming terminal, and the encryption function is selected by changing parameters.

111. (Previously Presented) An integrated information communication system according to Claim 97, wherein an ICS user address and an ICS network address of an opponent with whom the communication is to be made are obtained by using the telephone number as an ICS domain name, and the ICS network address is held in the conversion table in the access control apparatus on a calling side.

112. (Previously Presented) An integrated information communication system according to Claim 97, wherein a telephone communication is accomplished by transmitting and receiving an ICS user frame storing digitized voice between an external IP telephone and another IP telephone in the integrated information communication system.

113. (Previously Presented) An integrated information communication system according to Claim 63, wherein plural records of the conversion table in the access control apparatus on the sending side respectively include the receiver ICS user address, any of the plural records is referred in accordance with a change of the receiver ICS user address imparted to the ICS user frame, and the ICS network communication line in which the ICS network frame is transferred is selected.

114. (Previously Presented) An integrated information communication system in which an ICS network address of an internal ICS network frame is determined by using the conversion table in the access control apparatus based on an ICS logic terminal of a sending side and the ICS user address in the external ICS user frame, the ICS network address is converted into the ICS network frame by using the determined ICS network address, the ICS network frame is transferred inside and reaches at the access control apparatus on a receiving side, then the external ICS user frame is reconstituted,



and an ICS logic terminal on the receiving side to which a sender ICS network frame is to be transmitted, determined by using at least ICS network address in the ICS network frame.

115. (Previously Presented) A method for discriminating closed network and LAN, in an integrated information communication system wherein an ICS network address of an internal ICS network frame is determined by using a conversion table in an access control apparatus based on an ICS logic terminal information of a sending side and a receiver ICS user address in an external ICS user frame, the ICS network address is converted into the ICS network frame by using the determined ICS network address, the ICS network frame is transferred inside and reaches at the access control apparatus on a receiving side, then the external ICS user frame is reconstituted, and an ICS logic terminal on the receiving side to which a sender ICS network frame is to be transmitted by using at least ICS network address in the ICS network frame,

a closed network is discriminated as a region of a sender ICS user address by using a sender ICS user address in the external ICS user frame; and

LAN including an originating IP terminal for connecting to a user communication line to be connected to an ICS logic terminal on a sending side is discriminated.

116. (Previously Presented) A communication function circuit which comprising:

a conversion table unit including one or more records in which a receiving ICS network address is registered so as to be exclusively determined when there is determined a set of an originating ICS network address, a sender ICS user address and a receiver ICS user address;

a sending side function of receiving an ICS user frame inputted to the ICS logic terminal and an ICS network address imparted to the ICS logic terminal, and converting the ICS user frame into an ICS network frame when it is found that the ICS network address, the sender ICS user address and the receiver ICS user address included in the ICS user frame are registered in the record of the conversion table; and

a receiving side function of reconstituting the ICS user frame from the ICS network frame and sending it to the other logic terminal.

117. (Previously Presented) A communication function circuit which comprising:  
a conversion table unit including one or more records in which a receiving ICS network address is registered so as to be exclusively determined when there is determined a set of an originating ICS network address and a receiver ICS user address;

a sending side function of receiving an ICS user frame inputted to the ICS logic terminal and an ICS network address imparted to the ICS logic terminal, and converting the ICS user frame into an ICS network frame when it is found that the ICS network address and the receiver ICS user address included in the ICS user frame are registered in the record of the conversion table; and

a receiving side function of reconstituting the ICS user frame from the ICS network frame and sending it to the other logic terminal.

118. (Previously Presented) A communication function circuit having a conversion table unit that includes one or more records in which a receiving ICS network address is registered so as to be exclusively determined when there is determined a receiver ICS user address, a function unit a sending side which receives an ICS user frame inputted through an ICS logic terminal and an ICS network address imparted to the ICS logic terminal, and converts the ICS user frame into the ICS network frame when it is found that the receiver ICS user address included in the ICS user frame is registered at the record of the conversion table, and a functional unit of a receiving side which reconstitutes the ICS user frame from the ICS network frame and sends it to the other ICS logic terminal.

119. (Previously Presented) An integrated information communication system (ICS) comprising:  
wherein an ICS network address of an inner ICS user network address is determined based on an ICS user address assigned to a transmitting ICS logic terminal and an external sending ICS user frame, and

a receiving ICS logic terminal for sending a sending ICS network frame is determined based on said determined ICS network address.

120. (Previously Presented) An integrated information communication system according to Claim 119, wherein the ICS user frame stores a digitalized telephone voice.

121. (Previously Presented) An integrated information communication system according to Claim 119, wherein an IP telephone is connected with the integrated information communication system, and a digitalized telephone voice is transferred therein.

122. (Previously Presented) An integrated information communication system (ICS) comprising:  
wherein an external ICS user frame having a unique ICS user address system ADX is converted into an inner ICS network frame having an ICS network address system ADS based on an administration of a conversion table in an access control apparatus,  
the ICS network frame comprises a network control field and a network data field,  
the network control field stores addresses according to the ICS network address system ADS and the network data field includes the ICS user frame,  
the ICS network frame is sent inside according to a rule of the ICS network address system ADS,  
the ICS user frame is restored from the ICS network frame and is transferred to another external information communication equipment,  
an internal address system is defined regardless of an external address system,  
the ICS network address is assigned to an ICS logic terminal,  
a receiving ICS network address is registered as a record in the conversion table so as to settle automatically when a group of an ICS logic terminal discriminating information, a sender ICS user address and a receiver ICS user address is determined, and  
the ICS user frame is converted into the ICS network frame when it is found out that all of the ICS logic terminal inputted from the ICS user frame, the sender ICS user address in the ICS user frame and the receiver ICS user address are registered at the record in the conversion table.

123. (Previously Presented) An integrated information communication system according to Claim 122, wherein the ICS user frame stores a digitalized telephone voice.

124. (Previously Presented) An integrated information communication system according to Claim 122, wherein an IP telephone is connected with the integrated information communication system, and a digitalized telephone voice is transferred therein.

125. (Previously Presented) An integrated information communication system (ICS) comprising:  
wherein a sender ICS user frame inputs from an ICS logic terminal at a terminating point of a user communication line, and an ICS network communication line which is an ICS network frame transferred between a transmitting access control apparatus and a receiving access control apparatus is settled when a group of an ICS logic terminal discriminating information of sending side and a receiver ICS user address in a sending ICS user frame is determined.

126. (Previously Presented) An integrated information communication system according to Claim 125, wherein the ICS user frame stores a digitalized telephone voice.

127. (Previously Presented) An integrated information communication system (ICS) comprising:  
wherein a sender ICS user frame inputs from an ICS logic terminal at a terminating point of a user communication line, and an ICS network communication line which is an ICS network frame transferred between a transmitting access control apparatus and a receiving access control apparatus is settled when a group of an ICS logic terminal discriminating information of sending side, a receiver ICS user address in a sending ICS user frame and a receiver ICS user address is determined.

128. (Previously Presented) An IP telephone set including at least an IP address storing unit, an audio data inputting and outputting unit, and an audio data transmitting and receiving unit, wherein:  
an ICS user frame including a telephone number of a destination telephone set is produced and sent out to an ICS user communication line, an ICS user address in the ICS user frame including

an ICS user address of the telephone set included in the IP address storing unit and an ICS user address of an inquired server;

an ICS user frame storing the ICS address of the destination telephone set is received from the ICS communication line;

an audio data is inputted from the audio inputting and outputting unit;

the audio data is converted to a digital audio data at an audio data transmitting and receiving unit, stored in the ICS user frame, and transmitted to the destination telephone set; and

telephone communication is thereafter carried out with ICS user frames transmitted and received, the ICS user addresses in the ICS user frame including digital audio data including the ICS user address of the telephone set and the obtained ICS user address of the destination telephone set.

129. (Previously Presented) An IP terminal including a function of producing, and transmitting and receiving at least an ICS domain name and an ICS user address of the IP terminal, an ICS user address of a cataloged server and an ICS user frame, wherein:

the IP terminal is connected to a position of a home IP terminal by a user of the IP terminal for sending out to a user communication line an ICS user frame including at least the name of the ICS domain and the ICS user address of the IP terminal produced in the IP terminal; and

the address of the ICS user frame includes the ICS user address of the IP terminal and the ICS user address of the cataloged server, so that the IP terminal can receive the ICS user frame including a report of cataloging from the user communication line.

130. (Previously Presented) An integrated information communication system including two or more access controllers, wherein:

an access control apparatus on an originating side converts a transmission ICS user frame, inputted from an ICS logical terminal at an end of a user communication line, to an ICS network frame, which is transferred in the integrated information communication system;

an access control apparatus on a receiving side receives the transmitted ICS network frame arrived thereat and restores the ICS network frame as the ICS user frame; and

the ICS user frame including a digitalized audio signal.

131. (Previously Presented) An integrated information communication system, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information at a transmitting side and a receiver ICS user address in the transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device at the transmitting side and an access control device at an incoming side.

132. (Previously Presented) An integrated information communication system, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information, and a transmitter ICS user address and a receiver ICS user address in the transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device at a transmitting side and an access control device at an incoming side.

133. (Previously Presented) An integrated information communication system, wherein an external ICS user frame having an inherent ICS user address system ADX is converted to an internal ICS network frame having an ICS network address system ADS on the basis of management of a conversion table in an access control device, the ICS network frame comprises a network control section and a network data section, the network control section stores an address according to the ICS network address system ADS, the network data section includes the ICS user frame, the ICS network frame are transmitted through an interior in accordance with rules of the ICS network address system ADS, and the ICS user frame is restored from the ICS network frame and transferred to another external information communication equipment, and

an internal address system is determined regardless of an external user address system, the ICS network address is given to an ICS logical terminal, and when a set of ICS logical terminal identification information, a transmitter ICS user address, and a receiver ICS user address is

determined, an incoming ICS network address is registered as a record of the conversion table so as to be set uniformly, and when it is found that the identification information of the ICS logical terminal which the ICS user frame inputted, and a transmitter ICS user address and a receiver ICS user address in the ICS user frame are registered together in the record of the conversion table, the ICS user frame is converted to the ICS network frame.

134. (Previously Presented) An integrated information communication system according to claim 133, wherein, on the basis of an ICS domain name, a conversion table server prepares new items of the conversion table including the ICS network address and the ICS user address obtained by forwarding an inquiry to a domain name server.

135. (Previously Presented) An integrated information communication system, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information at a transmitting side and a receiver ICS user address in the transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device at the transmitting side and an access control device at an incoming side, and, on the basis of an ICS domain name, a conversion table server prepares new items of a conversion table including an ICS network address and an ICS user address obtained by forwarding an inquiry to a domain name server.

136. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein the access control devices include a conversion table, an ICS user frame transmitted by a user is inputted to an access control device of a transmitting side via an ICS logical terminal at a termination of a user communication line and becomes an ICS network frame in the access control device of the transmitting side, the ICS network frame is transferred through the interior of the integrated information communication system and reaches an access control device of the incoming side, the ICS user frame is restored from the ICS network frame in

the access control device of the incoming side, and the restored ICS user frame reaches another user via a user communication line at a destination side, and

on the basis of an ICS domain name, a conversion table server prepares new items of the conversion table including an ICS network address and an ICS user address obtained by forwarding an inquiry to a domain name server, and a user transmits and receives the ICS user frame between an external IP terminal of the integrated information communication system and an IP terminal of another user, and at this time, IP frame communication is carried out by using the new items of the conversion table.

137. (Previously Presented) An access control device, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information and a receiver ICS user address in the transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device at a transmitting side and an access control device at an incoming side.

138. (Previously Presented) An access control device, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information, and a transmitter ICS user address and a receiver ICS user address in the transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device at a transmitting side and an access control device at an incoming side.

139. (Previously Presented) An access control device, wherein an external ICS user frame having an inherent ICS user address system ADX is converted to an internal ICS network frame having an ICS network address system ADS on the basis of management of a conversion table in the access control device, the ICS network frame comprises a network control section and a network data section, the network control section stores an address according to the ICS network address system



ADS, the network data section includes the ICS user frame, the ICS network frame are transmitted through the interior accordance with rules of the ICS network address system ADS, and the ICS user frame is restored from the ICS network frame and transferred to another external information communication equipment, and

an internal address system is determined regardless of an external user address system, an ICS network address is given to the ICS logical terminal, and when a set of logical terminal identification information, a transmitter ICS user address, and a receiver ICS user address is determined, an incoming ICS network address is registered as a record of the conversion table so as to be set uniformly, and when it is found that the identification information of the ICS logical terminal which the ICS user frame inputted, and a transmitter ICS user address and a receiver ICS user address in the ICS user frame are registered together in the record of the conversion table, the ICS user frame is converted to the ICS network frame, and

on the basis of an ICS domain name, a conversion table server prepares new items of the conversion table including an ICS network address and an ICS user address obtained by forwarding an inquiry to a domain name server.

140. (Previously Presented) A charging method, wherein an integrated information communication system includes two or more access control devices, and an external transmission ICS user frame is inputted to an access control device at a transmitting side via an ICS logical terminal at a termination of a user communication line, and an internal ICS network frame is formed in the access control device at the transmitting side;

when an ICS user address of a user who transmitted the ICS user frame is registered in the access control device, an internal ICS network frame is formed, and when the ICS user address of the user who is a source of transmission is not registered in the access control device, the transmission ICS user frame is destroyed; and

the formed ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device at an incoming side, and the ICS user frame is restored from the ICS network frame in the access control device at the incoming

side, and a communication fee is charged to the user who transmitted the ICS user frame by forming the ICS network frame or destroying the ICS user frame on the basis of whether or not the transmission source address of the ICS user frame is registered in the access control device at the transmitting side.

141. (Previously Presented) A charging method, wherein an integrated information communication system includes two or more access control devices, and an external transmission ICS user frame is inputted to an access control device at a transmitting side via an ICS logical terminal at a termination of a user communication line and becomes an internal ICS network frame in the access control device at the transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device at an incoming side, and the ICS user frame is restored from the ICS network frame in the access control device at the incoming side; and

an ICS network address identifying the ICS logical terminal is given to the ICS logical terminal at the termination of the user communication line, and on the basis of whether or not the ICS network address at the transmitting side is registered in a conversion table of the access control device at the transmitting side, a transmitted ICS user frame is converted to the internal ICS network frame, and a communication fee is charged to the user communication line by selecting whether or not the ICS network frame is transferred through the interior of the integrated information communication system.

142. (Previously Presented) An integrated information communication system, wherein, on the basis of an ICS user address given to an ICS logical terminal at a transmitting side and an external transmission ICS user frame, an ICS network address of an internal ICS network frame is determined, and telephone communication is made possible by transmitting and receiving an ICS user frame, in which a digitized voice is stored, between users outside an integrated information communication system, via the integrated information communication system which, on the basis of the determined

ICS network address, determines the ICS logical terminal at the incoming side which should transmit a transmission ICS network frame.

143. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein the access control devices include a conversion table, and an ICS user frame transmitted by a user is inputted to an access control device at a transmitting side via an ICS logical terminal at a termination of a user communication line, and becomes an ICS network frame in the access control device at the transmitting side, and the ICS network frame is transferred through the interior of the integrated information communication system and reaches an access control system at an incoming side, and the ICS user frame is restored from the ICS network frame in the access control system at the incoming side, and the restored ICS user frame reaches another user via a user communication line at a destination side;

on the basis of a telephone number, a conversion table server prepares new items of the conversion table including an ICS network address and an ICS user address obtained by forwarding an inquiry to a domain name server; and

an ICS user frame in which a digitized voice is stored is transmitted and received among two or more users, and telephone communication among the users is made possible by using the new items of the conversion table at an interior of an access control device in the integrated information communication system.

144. (Previously Presented) An integrated information communication system, wherein a transmission ICS user frame is inputted from an ICS logical terminal of an access control device at a termination of a user communication line, and an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to an ICS logical terminal at a transmitting side and an external transmission ICS user frame, and an ICS logical terminal at an incoming side to which the transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address; and

the access control device has encoding means and decoding means, and when a code class of the conversion table is specified to be "1" or "0" at the time of ICS encapsulation, the ICS user frame is encoded by the encoding means and is converted to the ICS network frame and is transmitted through an interior of the integrated information communication system, and at the time of ICS reverse-encapsulation, a code class of a control section of the ICS network frame is investigated, and the ICS network frame is returned to an original ICS user frame by the decoding means in accordance with the designation of "1" or "0".

145. (Previously Presented) An integrated information communication system, wherein a transmission ICS user frame is inputted from an ICS logical terminal of an access control device at a termination of a user communication line, and an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to an ICS logical terminal at a transmitting side and an external transmission ICS user frame, and an ICS logical terminal at an incoming side to which a transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address; and

an integrated information communication system receiver embeds, in a roaming terminal, an ICS domain name and an ICS user address of a roaming terminal user, a special roaming special service number for the roaming terminal, an ICS user address of a connection server, and a code function and code related data, and when the roaming terminal is connected to another access control device and starts inter-company communication, the ICS domain name, the code roaming special service number, the ICS user address of the connection server, the code function, and the code related data are used.

146. (Previously Presented) An integrated information communication system, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information of a transmitting side and a receiver ICS user address in a transmission ICS user frame is determined, an ICS network

communication line in which an ICS network frame is transferred is determined between an access control device of the transmitting side and an access control device of an incoming side; and

an integrated information communication system receiver embeds, in a roaming terminal, an ICS domain name and an ICS user address of a roaming terminal user, a special roaming special service number for the roaming terminal, an ICS user address of a connection server, and a code function and code related data, and when the roaming terminal is connected to another access control device and starts inter-company communication, the ICS domain name, the code roaming special service number, the ICS user address of the connection server, the code function, and the code related data are used.

147. (Previously Presented) An integrated information communication system, wherein a transmission ICS user frame is inputted from an ICS logical terminal of an access control device at a termination of a user communication line, and an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to the ICS logical terminal at a transmitting side and an external transmission ICS user frame, and an ICS logical terminal at an incoming side to which a transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address; and

the access control device includes a telephone line converting section or a portable telephone line converting section having functions of converting and reversely converting an interface of a telephone line or a portable telephone line to an ICS network frame transferable in an ICS network.

148. (Previously Presented) An integrated information communication system, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information at a transmitting side and a receiver ICS user address in a transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device of the transmitting side and an access control device of an incoming side; and

each access control device includes a telephone line converting section or a portable telephone line converting section having functions of converting and reversely converting an interface of a telephone line or a portable telephone line to an ICS network frame transferable in an ICS network.

149. (Previously Presented) An integrated information communication system, wherein a transmission ICS user frame is inputted from an ICS logical terminal of an access control device at a termination of a user communication line, and an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to the ICS logical terminal at a transmitting side and an external transmission ICS user frame, and an ICS logical terminal at an incoming side to which the transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address; and

the access control device includes a CATV line converting section having functions of converting and reversely converting an interface of a CATV line to an ICS network frame transferable in an ICS network.

150. (Previously Presented) An integrated information communication system, wherein, when a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and a set of ICS logical terminal identification information at a transmitting side and a receiver ICS user address in a transmission ICS user frame is determined, an ICS network communication line in which an ICS network frame is transferred is determined between an access control device at the transmitting side and an access control device at an incoming side; and

each access control device includes a CATV line converting section having functions of converting and reversely converting an interface of a CATV line to an ICS network frame transferable in an ICS network.

151. (Previously Presented) An integrated information communication system wherein a transmission ICS user frame is inputted from an ICS logical terminal of an access control device at

a termination of a user communication line, and an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to the ICS logical terminal at a transmitting side and an external transmission ICS user frame, and an ICS logical terminal at an incoming side to which the transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address; and

the access control device is connected to a telephone line, an ISDN line, a CATV line, a satellite line, an IPX line, or a portable telephone line, and even if a transmitting side is any of a telephone line, an ISDN line, a CATV line, a satellite line, an IPX line, or a portable telephone line, any of a telephone line, an ISDN line, a CATV line, a satellite line, an IPX line, or a portable telephone line of a receiving side can be selected.

152. (Previously Presented) A communication function circuit comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address, a sender ICS user address, and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a sender ICS user address and a receiver user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame transmitted from the access control device to an interior of an integrated information communication system is selected by using transmission priority information of a conversion table in the access control device in accordance with a type of the higher order protocol.

153. (Previously Presented) A communication function circuit comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address, a sender ICS user address, and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a sender ICS user address and a receiver ICS user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame received at an access control device from an interior of the ICS is selected by using incoming priority information of a conversion table in the access control device in accordance with a type of the higher order protocol.

154. (Previously Presented) A communication function circuit comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a receiver ICS user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame transmitted from the access control device to an interior of an integrated information communication system is selected by using transmission priority information



of a conversion table in the access control device in accordance with a type of the higher order protocol.

155. (Previously Presented) A communication function circuit comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a receiver user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame received at an access control device from an interior of the ICS is selected by using incoming priority information of a conversion table in the access control device in accordance with a type of the higher order protocol.

156. (Previously Presented) A communication function program module comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address, a sender ICS user address, and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a sender ICS user address and a receiver ICS user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal.

157. (Previously Presented) A communication function program module comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a receiver ICS user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal.

158. (Previously Presented) A communication function program module comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address, a sender ICS user address, and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a sender ICS user address and a receiver user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame transmitted from the access control device to an interior of an integrated information communication system is selected by using transmission priority information of a conversion table in the access control device in accordance with a type of the higher order protocol.

159. (Previously Presented) A communication function program module comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address, a sender ICS user address, and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a sender ICS user address and a receiver ICS user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame received at an access control device from an interior of an integrated information communication system is selected by using incoming priority information of a conversion table in the access control device in accordance with a type of the higher order protocol.

160. (Previously Presented) A communication function program module comprising:

a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address and a receiver ICS user address is determined; and

a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a receiver ICS user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame transmitted from the access control device to an interior of an integrated information communication system is selected by using transmission priority information

of a conversion table in the access control device in accordance with a type of the higher order protocol.

161. (Previously Presented) A communication function program module comprising:  
a conversion table section including one or more records registered such that an incoming ICS network address is set uniformly when a set of a transmission ICS network address and a receiver ICS user address is determined; and

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a function section which, as a transmitting side, inputs an ICS user frame inputted from an ICS logical terminal and an ICS network address given to the ICS logical terminal, and converts the ICS user frame to an ICS network frame when it is found that the ICS network address and a receiver user address included in the ICS user frame are registered together in a record of the conversion table section, and which, as an incoming side, restores the ICS user frame from the ICS network frame and transmits it to another ICS logical terminal,

wherein, with reference to a higher order protocol in the transmission ICS user frame, the priority at a next stage of an IP frame received at an access control device from an interior of an integrated information communication system is selected by using incoming priority information of a conversion table in the access control device in accordance with a type of the higher order protocol.

162. (Previously Presented) A method of identifying closed network and LAN, wherein  
in an integrated information communication system in which an internal ICS network address is determined by using a conversion table of an access control device on the basis of ICS logical terminal information at a transmitting side, and a sender ICS user address and a receiver ICS user address in an external ICS user frame, and the external user frame is converted to the ICS network frame by using the determined ICS network address, and the ICS network frame is transferred through an interior and reaches an access control device of an incoming side, and the external ICS user frame is restored, and an ICS logical terminal at an incoming side is determined by using at least an incoming ICS network address in the ICS network frame,

by using the sender ICS user address in the external ICS user frame, a closed network is identified as a range segment of the sender ICS user address, and a LAN, which includes a transmission source IP terminal connected to a user communication line connected to the ICS logical terminal at the transmitting side, is identified.

163. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein the access control devices include a conversion table, and an ICS user frame sent by a user is inputted to an access control device at a transmitting side via an ICS logical terminal at a termination of a user communication line;

a processor of the access control device at the transmitting side presents to a domain name server an ICS domain name designating a receiving user acquired from an interior of the ICS user frame, and acquires a receiver ICS user address of a receiving user, and the processor presents the acquired receiver ICS user address to an ICS address managing server and acquires an ICS network address and address related information corresponding to the ICS user address, and the processor writes the acquired receiver ICS user address, the ICS network address and the address related information into the conversion table of the access control device;

the processor sends back the receiver ICS user address to a transmitting user, and the transmitting user acquires the receiver ICS user address;

the ICS user frame sent by the user at the sending side is inputted to the access control device at the transmitting side via the ICS logical terminal at the termination of the user communication line, and the ICS user frame becomes an ICS network frame, and the ICS user address, the ICS network address, and the address related information which are written in the conversion table as new records are used;

the ICS network frame is transferred through an interior of the integrated information communication system and reaches the access control device at the incoming side, and the ICS user frame is restored from the ICS network frame in the access control device at the incoming side, and the restored ICS user frame reaches another user via the user communication line at the receiving side; and

IP frame communication is carried out by using the newly written records of the conversion table.

164. (Previously Presented) An integrated information communication system according to claim 131, wherein a conversion table server is provided, and the conversion table server registers, in the conversion table, new items of the conversion table formed on the basis of information obtained from the ICS user frame.

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165. (Previously Presented) An integrated information communication system according to claim 133, wherein a conversion table server is provided, and the conversion table server registers, in the conversion table, new items of the conversion table formed on the basis of information obtained from the ICS user frame.

166. (Previously Presented) An integrated information communication system, wherein an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to an ICS logical terminal at a transmitting side and an external ICS user frame, and an ICS logical terminal at an incoming side to which a transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address, and a conversion table server registers, in a conversion table, new items of the conversion table which are formed on the basis of information obtained from the ICS user frame.

167. (Previously Presented) An access control device for an integrated information communication system, wherein an ICS network address of an internal ICS network frame is determined on the basis of an ICS user address given to an ICS logical terminal at a transmitting side and an external ICS user frame, and an ICS logical terminal at an incoming side to which a transmission ICS network frame is to be transmitted is determined on the basis of the determined ICS network address, and a conversion table server registers, in a conversion table, new items of the conversion table which are formed on the basis of information obtained from the ICS user frame.

168. (Previously Presented) An integrated information communication system according to claim 133, wherein a conversion table server is provided, and the conversion table server registers, in the conversion table, new items of the conversion table formed on the basis of information obtained from the ICS user frame.

169. (Previously Presented) An integrated information communication system according to claim 131, wherein a conversion table server is provided, and the conversion table server registers, in the conversion table, new items of the conversion table formed on the basis of information obtained from the ICS user frame.

6 170. (Previously Presented) An integrated information communication system according to claim 131 or 133, wherein when the access control device receives an ICS user frame, the access control device reads the type of charging method of each ICS frame held in the conversion table on the basis of an ICS user address included in the ICS user frame, and when the read type is a value expressing a measured rate charging method, the access control device generates charging information and transmits the charging information to a charging server as a charging information frame, and when the read contents are a value expressing a flat rate charging method, the access control device charges the user by generating the charging information and transmitting the charging information to the charging server as the charging information frame.

171. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and when telephone communication is carried out, an ICS user address of a communication destination and an ICS network address given to the

access control device of the incoming side are acquired on the basis of a telephone number, and the ICS user address and the ICS network address are held in a conversion table in an access control device at a calling side.

172. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and when telephone communication is carried out, an ICS user address of a communication destination and an ICS network address given to the access control device of the incoming side are acquired on the basis of a telephone number, and a voice is carried on a ICS user frame.

173. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and a telephone machine is connected via a telephone line from a telephone line control section at an interior of the access control device, and telephone communication is possible.

174. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes



an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and in the access control device of the incoming side, the ICS network frame connects, to an access control device, a first radio transceiver which has a function of converting internal information of an ICS user frame into a radio wave type ICS user frame and sending it and a function of receiving a radio wave type ICS user frame and reversely converting it into internal information of an ICS user frame, and communication is carried out between the ICS network frame and an IP terminal, in which a second radio transceiver having the same functions as said functions, is built-in.

175. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and an ICS domain name of a receiver is presented from an exterior IP terminal of the integrated information communication system to a conversion table server at an interior of the integrated information communication system, and the conversion table server forwards an inquiry to a domain name server and acquires an address of a receiver corresponding to the ICS domain name, and the conversion table server rewrites the conversion table.

176. (Previously Presented) An IP telephone machine comprising at least an IP address storing section, a voice inputting/outputting section, and a voice data transmitting/receiving section, the IP telephone machine generating an ICS user frame including a telephone number of a destination telephone machine and transmitting it to an ICS user communication line, wherein an ICS user address in the ICS user frame is the ICS user address of the telephone machine included in the IP

address storing section and the ICS user address of an inquiry destination server, and the ICS user frame which stores the ICS user address of the destination telephone machine is received from the ICS user communication line, and a voice is inputted from the voice inputting/outputting section, and the voice is converted to a digital voice in the voice transmitting/receiving section and is stored in the ICS user frame and is transmitted to the destination telephone machine, and thereafter, telephone communication is carried out by transmitting and receiving the ICS user frame, and the ICS user address in the ICS user frame including the digital voice is the ICS user address of the telephone machine and the ICS user address of the acquired destination telephone machine.

177. (Previously Presented) An IP terminal comprising at least an ICS domain name and an ICS user address of the IP terminal, an ICS user address of a registration server, and a code function and a code related data, and further comprising a function which generates an ICS user frame and transmits and receives it, wherein a user of the IP terminal connects the IP terminal to a position of a home IP terminal and generates an ICS user frame including at least an ICS domain name and an ICS user address of the IP terminal and transmits it to a user communication line, and an address of the ICS user frame is the ICS user address of the IP terminal and the ICS user address of the registration server, and the IP terminal can receive an ICS user frame including a report of the registration from the user communication line.

178. (Previously Presented) An IP telephone machine, wherein an integrated information communication system includes two or more access control devices, and a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and the IP telephone machine includes at least an IP address storing section, a voice inputting/outputting section, and a voice data transmitting/receiving section, and, when telephone

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communication is carried out, generates an ICS user frame including a telephone number of a destination telephone machine and transmits it to an ICS user communication line, and the ICS user address in the ICS user frame is the ICS user address of the telephone machine included in the IP address storing section and the ICS user address of an inquiry destination server, and the ICS user frame which stores the ICS user address of the destination telephone machine is received from the ICS user communication line, and a voice is inputted from the voice inputting/outputting section, and the voice is converted to a digital voice in the voice transmitting/receiving section and is stored in the ICS user frame and is transmitted to the destination telephone machine, and thereafter, telephone communication is carried out by transmitting and receiving the ICS user frame, and the ICS user address in the ICS user frame including the digital voice is the ICS user address of the telephone machine and the ICS user address of the acquired destination telephone machine.

179. (Previously Presented) An integrated information communication system comprising at least an IP address storing section, a voice inputting/outputting section, and a voice data transmitting/receiving section, the IP telephone machine generating an ICS user frame including a telephone number of a destination telephone machine and transmitting it to an ICS user communication line, wherein an ICS user address in the ICS user frame is the ICS user address of the telephone machine included in the IP address storing section and the ICS user address of an inquiry destination server in the integrated information communication system, and the ICS user frame which stores the ICS user address of the destination telephone machine is received from the ICS user communication line, and a voice is inputted from the voice inputting/outputting section, and the voice is converted to a digital voice in the voice transmitting/receiving section and is stored in the ICS user frame and is transmitted to the destination telephone machine, and thereafter, telephone communication is carried out by transmitting and receiving the ICS user frame, and communication is carried out by connecting to the IP telephone machine which carries out communication on the basis of the fact that the ICS user address in the ICS user frame including the digital voice is the ICS user address of the telephone machine and the ICS user address of the acquired destination telephone machine.

180. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device at a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and the ICS user frame includes a digitized voice.

181. (Previously Presented) An IP terminal comprising at least an ICS domain name and an ICS user address of the IP terminal, an ICS user address of a registration server, and further comprising a function which generates an ICS user frame and transmits and receives it, wherein a user of the IP terminal connects the IP terminal to a position of a home IP terminal and generates an ICS user frame including at least an ICS domain name and an ICS user address of the IP terminal and transmits it to a user communication line, and an address of the ICS user frame is the ICS user address of the IP terminal and the ICS user address of the registration server, and the IP terminal can receive an ICS user frame including a report of the registration from the user communication line.

182. (Previously Presented) An IP terminal, wherein an integrated information communication system includes two or more access control devices, and a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device at a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches an access control device of an incoming side and is restored as the ICS user frame, and in the access control device of the incoming side, the ICS network frame includes at least an ICS domain name of the IP terminal, an ICS user address given to the access control device of the incoming side, and a function generating an ICS user address and an user ICS frame of a registration server and transmitting and receiving them, and a user of the IP terminal connects the IP terminal to

a position of a home IP terminal and generates an ICS user frame including at least an ICS domain name and an ICS user address of the IP terminal and transmits it to the user communication line, and the address of the ICS user frame is the ICS user address of the IP terminal and the ICS user address of the registration server, and the IP terminal can receive the ICS user frame including a report of the registration from the user communication line.

183. (Previously Presented) An IP terminal comprising at least an IP address storing section, a voice inputting/outputting section, and a voice data transmitting/receiving section, and generating an ICS user frame including a telephone number of a destination IP terminal and transmitting it to an ICS user communication line, wherein an ICS user address in the ICS user frame is the ICS user address of said IP terminal included in the IP address storing section and the ICS user address of an inquiry destination server, and the ICS user frame which stores the ICS user address of the destination IP terminal is received from the ICS user communication line, and a voice is inputted from the voice inputting/outputting section, and the voice is converted to a digital voice in the voice transmitting/receiving section and is stored in the ICS user frame and is transmitted to the destination IP terminal, and thereafter, telephone communication is carried out by transmitting and receiving the ICS user frame, and the ICS user address in the ICS user frame including the digital voice is the ICS user address of said IP terminal and the ICS user address of the acquired destination IP terminal.

184. (Previously Presented) A communication method comprising at least an IP address storing section, a voice inputting/outputting section, and a voice data transmitting/receiving section, and generating an ICS user frame including a telephone number of a destination IP terminal and transmitting it to an ICS user communication line, wherein an ICS user address in the ICS user frame is the ICS user address of said IP terminal included in the IP address storing section and the ICS user address of an inquiry destination server, and the ICS user frame which stores the ICS user address of the destination IP terminal is received from the ICS user communication line, and a voice is inputted from the voice inputting/outputting section, and the voice is converted to a digital voice in the voice transmitting/receiving section and is stored in the ICS user frame and is transmitted to the

destination IP terminal, and thereafter, telephone communication is carried out by transmitting and receiving the ICS user frame, and the ICS user address in the ICS user frame including the digital voice is the ICS user address of said IP terminal and the ICS user address of the acquired destination IP terminal.

185. (Previously Presented) An integrated information communication system (ICS) including two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logic terminal connected to a user communication line, and the transmission ICS user frame is converted into an ICS network frame in an access control device on the transmitting side, and the ICS network frame is transferred through the integrated information communication system and reaches an access control device on the receiving side, and the ICS user frame is restored from the ICS network frame in the access control device on the receiving side, and when telephone communication is carried out, a telephone machine on the receiving side receives an ICS user frame transmitted via an ICS user communication line from an originating user,

wherein inputted voice signals are converted by voice data transmitting/receiving means into a format which can be transmitted across the ICS network, and are transmitted to the telephone machine on the receiving side, and thereafter, telephone communication is carried out by transmitting and receiving ICS user frames between the originating user and the destination user.

186. (Previously Presented) A communication method, wherein two telephone machines communicate with each other across the integrated information communication system (ICS) claimed in claim 185.

187. (Previously Presented) An integrated information communication system comprising two or more access control devices, wherein a transmission ICS user frame is inputted from an ICS logical terminal at a termination of a user communication line, and the transmission ICS user frame becomes an ICS network frame in an access control device of a transmitting side, and the ICS network frame is transferred through an interior of the integrated information communication system and reaches

an access control device of an incoming side, and the ICS network frame is restored as the ICS user frame in the access control device of the incoming side, and when telephone communication is carried out, an ICS user address of a communication destination is acquired on the basis of a telephone number, and a voice is carried on a ICS user frame.

**Please add new claims 188-245 as follows.**

188. (New) An IP communication network, wherein said IP communication network is connected to two or more terminals, a terminal of sending side forms an IP packet including a telephone number of a destination terminal and sends said IP packet to said IP communication network, said IP communication network forms an IP address of said destination terminal based on a sent telephone number and replies it to said terminal of sending side, and a communication between terminals is carried out based on an IP address of said terminal of sending side and an IP address of said destination terminal.

189. (New) A communication method between terminals, wherein an IP communication network is connected to two or more terminals, a terminal of sending side forms an IP packet including a telephone number of a destination terminal and sends said IP packet to said IP communication network, said IP communication network forms an IP address of said destination terminal based on a sent telephone number and replies it to said terminal of sending side, and a communication between terminals is carried out based on an IP address of said terminal of sending side and an IP address of said destination terminal.

190. (New) A terminal, wherein an IP communication network is connected to two or more terminals, a terminal of sending side forms an IP packet including a telephone number of a destination terminal and sends said IP packet to said IP communication network, said IP communication network forms an IP address of said destination terminal based on a sent telephone number and replies it to

said terminal of sending side, and a communication with said destination terminal is carried out by using a replied IP address of said destination terminal and a self IP address.

191. (New) An IP communication network, wherein said IP communication network is connected to terminals and a public telephone network, telephones are connected to said public telephone network, a communication with said terminal is carried out by using IP packets, and a telephone communication is carried out between a connected terminal and a telephone connected to said public telephone network.

192. (New) An IP communication network, wherein said IP communication network is connected to terminals and a public telephone network, telephones are connected to said public telephone network, said IP communication network includes a function to form an IP address of a destination terminal-based on a telephone number of said destination terminal, and a telephone communication is carried out between a connected terminal and a telephone connected to said public telephone network.

193. (New) An IP communication network, wherein said IP communication network is connected to terminals and an international telephone network, telephones are connected to said international telephone network, said IP communication network includes a function to form an IP address based on a destination telephone number, and a telephone communication is carried out between a terminal connected to said IP communication network and a telephone connected to said international telephone network.

194. (New) A communication method between terminals, wherein an ICS user frame including an IP address storage portion, a voice input/output portion, a voice data sending/receiving portion and a telephone number of a destination terminal is formed, said ICS user frame is sent to a user communication line, an ICS user address in said ICS user frame is an ICS user address of said



terminal including in said IP address storage portion and an ICS user address of an inquiring server in an integrated information communication system, comprising the steps of:

receiving an ICS user frame stored an ICS user address of said destination terminal from said ICS user communication line;

inputting a voice from said voice input/output portion;

converting from the voice to digital voice in said voice data sending/receiving portion;

sending the digital voice to said destination terminal by storing it in said ICS user frame;

carrying out a telephone communication by sending/receiving the ICS user frame; and

whereby an ICS user address in said ICS user frame including the digital voice includes a function to communicate by connecting to a terminal to be communicated, based on an ICS user address of the terminal and an ICS user address of said destination terminal.

195. (New) A telephone machine, wherein an ICS user frame including an IP address storage portion, a voice input/output portion, a voice data sending/receiving portion and a telephone number of a destination telephone machine is formed, said ICS user frame is sent to a user communication line, an ICS user address in said ICS user frame is an ICS user address of said telephone machine including in said IP address storage portion and an ICS user address of an inquiring server in an integrated information communication system, and

said telephone machine receives an ICS user frame stored an ICS user address of said destination telephone machine from said ICS user communication line, inputs a voice from said voice input/output portion, converts from the voice to digital voice in said voice data sending/receiving portion, sends the digital voice to said destination telephone machine by storing it in said ICS user frame and carries out a telephone communication by sending/receiving the ICS user frame; and

whereby an ICS user address in said ICS user frame including the digital voice includes a function to communicate by connecting to a telephone machine to be communicated, based on an ICS user address of the telephone machine and an ICS user address of said destination telephone machine.

196. (New) A terminal, wherein an ICS user frame including an IP address storage portion, a voice input/output portion, a voice data sending/receiving portion and a telephone number of a destination terminal is formed, said ICS user frame is sent to a user communication line, an ICS user address in said ICS user frame is an ICS user address of said terminal including in said IP address storage portion and an ICS user address of an inquiring server in an integrated information communication system, and

said terminal receives an ICS user frame stored an ICS user address of said destination terminal from said ICS user communication line, inputs a voice from said voice input/output portion, converts from the voice to digital voice in said voice data sending/receiving portion, sends the digital voice to said destination terminal by storing it in said ICS user frame and carries out a telephone communication by sending/receiving the ICS user frame; and

whereby an ICS user address in said ICS user frame including the digital voice includes a function to communicate by connecting to a terminal to be communicated, based on an ICS user address of the terminal and an ICS user address of said destination terminal.

197. An IP communication network, wherein a terminal forms an IP packet including a telephone number of a destination terminal and sends it to a server connected with said IP communication network, said server forms an IP address of said destination terminal based on a telephone number of said destination terminal and replies it to said terminal, and said terminal carries out a communication with said destination terminal by sending/receiving IP packets and by using an IP address of said replied destination terminal and an own IP address of the terminal.

198. (New) A communication method between terminals, wherein a terminal forms an IP packet including a telephone number of a destination terminal and sends it to a server connected with said IP communication network, said server forms an IP address of said destination terminal based on a telephone number of said destination terminal and replies it to said terminal, and said terminal carries out a communication with said destination terminal by sending/receiving IP packets and by using an IP address of said replied destination terminal and an own IP address of the terminal.

199. (New) A terminal, wherein a terminal forms an IP packet including a telephone number of a destination terminal and sends it to a server connected with said IP communication network, said server forms an IP address of said destination terminal based on a telephone number of said destination terminal and replies it to said terminal, and said terminal carries out a communication with said destination terminal by sending/receiving IP packets and by using an IP address of said replied destination terminal and an own IP address of the terminal.

200. (New) A telephone machine, wherein a terminal forms an IP packet including a telephone number of a destination telephone machine and sends it to a server connected with said IP communication network, said server forms an IP address of said destination telephone machine based on a telephone number of said destination telephone machine and replies it to said telephone machine, and said telephone machine carries out a communication with said destination telephone machine by sending/receiving IP packets and by using an IP address of said replied destination telephone and an own IP address of the telephone.

201. (New) An IP communication network, wherein an inner packet is formed based on a logic terminal of sending side and an outer packet, and a logic terminal of receiving side is decided based on a logic terminal discriminating information of said formed inner packet.

202. (New) An IP communication network, wherein there is provided two or more access control apparatus, said access control apparatus includes two or more logic terminals, an access control apparatus of sending side forms inner packet based on a logic terminal of sending side and an outer packet, and an access control apparatus of receiving side decides a logic terminal of receiving side based on a logic terminal discriminating information of said received inner packet.

203. (New) An IP communication network, wherein there is provided two or more access control apparatus, said access control apparatus includes two or more logic terminals, an access control apparatus of sending side forms an inner packet based on an outer packet, an access control

apparatus of receiving side restores said outer packet, a communication between said access control apparatus is carried by using said inner packet, and said inner packet includes a logic terminal discriminating information of receiving side.

204. (New) An IP communication network, wherein access control apparatus includes two or more communication lines, logic terminals are decided for each communication line, an access control apparatus of sending side forms an inner packet from an outer packet for each logic terminal, an access control apparatus of receiving side restores said outer packet from said inner packet for each logic terminal of receiving side, and a communication between said access control apparatus is carried by using said inner packet.

205. (New) An access control apparatus, wherein said access control apparatus includes two or more logic terminals, forms an inner packet based on a logic terminal of sending side and an outer packet, and decides a logic terminal of receiving side based on a logic terminal discriminating information of said formed inner packet.

206. (New) An access control apparatus, wherein said access control apparatus includes two or more logic terminals, an access control apparatus of sending side forms an inner packet based on a logic terminal of sending side and an outer packet, and an access control apparatus of receiving side decides a logic terminal of receiving side based on a logic terminal discriminating information of said formed inner packet.

207. (New) An access control apparatus, wherein said access control apparatus includes two or more logic terminals, an access control apparatus of sending side forms an inner packet based on an outer packet, an access control apparatus of receiving side restores said outer packet, a communication between said access control apparatus is carried by using said inner packet, and said inner packet includes a logic terminal discriminating information of receiving side.

208. (New) An access control apparatus, wherein said access control apparatus is connected to two or more communication lines, a logic terminal is decided for each communication line, an access control apparatus of sending side forms an inner packet from an outer packet for each logic terminal, an access control apparatus of receiving side restores said outer packet from said inner packet for each logic terminal, and a communication between said access control apparatus is carried by using said inner packet.

209. (New) An IP communication network, wherein said IP communication network is connected to two or more terminals, said terminal sends a telephone number to said IP communication network, and communication connecting control between terminals is carried out by using IP packets based on a telephone number sent from said terminal.

210. (New) An IP communication network, wherein said IP communication network is connected to two or more terminals, said terminal sends a telephone number to said IP communication network, communication connecting control between terminals is carried out by using IP packets based on a telephone number sent from said terminal, and thereby to connect to a cellular phone.

211. (New) An IP communication network, wherein said IP communication network is connected to a terminal, said terminal sends a telephone number to said IP communication network, and an IP packet including a destination address is formed based on a telephone number sent from said terminal.

212. (New) An IP communication network according to Claim 201, wherein said inner packet includes a voice.

213. (New) An IP communication network according to Claim 201, wherein an inner packet including a destination address is formed based on a telephone number.

214. (New) An IP communication network according to Claim 201, wherein said inner packet includes a telephone number.

215. (New) An IP communication network according to Claim 201, wherein a telephone machine is connected to said access control apparatus.

216. (New) An IP communication network according to Claim 201, wherein a satellite line is connected to said access control apparatus.

217. (New) An IP communication network according to Claim 201, wherein a public telephone switching network is connected to said access control apparatus.

218. (New) An IP communication network according to Claim 201, wherein a terminal is connected to said access control apparatus.

219. (New) An IP communication network according to Claim 201, wherein a CATV terminal is connected to said access control apparatus.

220. (New) An IP communication network, wherein there is provided two or more access control apparatus, and an IP packet is electronically certified at an access control apparatus of sending side.

221. (New) An IP communication network according to Claim 201, wherein an IP packet is ciphered.

222. (New) An access control apparatus according to Claim 205, wherein an IP packet is ciphered.

223. (New) An IP communication network according to Claim 201, wherein an IP packet is electronically certified.

224. (New) An access control apparatus according to Claim 205, wherein an IP packet is electronically certified.

225. (New) An IP communication network, wherein there is provided two or more access control apparatus, two or more communication lines are connected to said access control apparatus, a logic terminal is decided for each communication line, and a destination address of IP packet is set in access control apparatus for each logic terminal.

226. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus, two or more communication lines are connected to said access control apparatus, a logic terminal is decided for each communication line, and a destination address of IP packet is set in access control apparatus for each logic terminal.

227. (New) An IP communication network, wherein there is provided two or more access control apparatus,

when a sending address of an outer packet is included in a sending address held in an access control apparatus of sending side,

an access control apparatus of sending side forms an inner packet based on said outer packet, said inner packet is restored at an access control apparatus of receiving side, and a communication between said access control apparatus is carried by using said inner packet.

228. (New) An IP communication network, wherein there is provided two or more access control apparatus,

when a destination address of an outer packet is included in a destination address held in an access control apparatus of sending side,

an access control apparatus of sending side forms an inner packet based on said outer packet, said inner packet is restored at an access control apparatus of receiving side, and a communication between said access control apparatus is carried by using said inner packet.

229. (New) An IP communication network, wherein there is provided two or more access control apparatus, an inner packet is formed at an access control apparatus of sending side based on an outer packet, a communication between said access control apparatus is carried by using said inner packet, and said access control apparatus forms said outer packet based on said inner packet when a sending address of an outer packet included in a received inner packet is included as a sending address of an outer packet held in an access control apparatus of receiving side.

230. (New) An IP communication network, wherein there is provided two or more access control apparatus, an inner packet is formed at an access control apparatus of sending side based on an outer packet, a communication between said access control apparatus is carried by using said inner packet, and said access control apparatus forms said outer packet based on said inner packet when a destination address of an outer packet included in a received inner packet is included as a destination address of an outer packet held in an access control apparatus of receiving side.

231. (New) An IP communication network, wherein there is provided two or more access control apparatus, an IP packet is discarded when a sending address of said IP packet is not included as a sending address of an IP packet held in an access control apparatus of sending side.

232. (New) An IP communication network, wherein there is provided two or more access control apparatus, an IP packet is discarded when a sending address included in a received IP



packet is not included as a sending address held in an access control apparatus of receiving side.

233. (New) An IP communication network, wherein there is provided two or more access control apparatus, an IP packet is discarded when a receiving address included in a received IP packet is not included as a receiving address held in an access control apparatus of receiving side.

234. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus,

when a sending address of an outer packet is included in a sending address of an outer packet held in an access control apparatus of sending side,

an access control apparatus of sending side forms an inner packet based on said outer packet, said inner packet is restored to said outer packet at an access control apparatus of receiving side, and a communication between said access control apparatus is carried by using said inner packet.

235. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus,

when a destination address of an outer packet is included in a destination address of an outer packet held in an access control apparatus of sending side,

an access control apparatus of sending side forms an inner packet based on said outer packet, said inner packet is restored to said outer packet at an access control apparatus of receiving side, and a communication between said access control apparatus is carried by using said inner packet.

236. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus, an access control apparatus of sending side forms an

inner packet based on an outer packet, a communication between said access control apparatus is carried by using said inner packet, an access control apparatus of receiving side restores said outer packet based on said inner when a sending address of an outer packet included in a received inner packet is included as a sending address of an outer packet held in an access control apparatus of receiving side.

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237. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus, an access control apparatus of sending side forms an inner packet based on an outer packet, a communication between said access control apparatus is carried by using said inner packet, an access control apparatus of receiving side restores said outer packet based on said inner when a destination address of an outer packet included in a received inner packet is included as a destination address of an outer packet held in an access control apparatus of receiving side.

238. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus, an IP packet is discarded when a sending address of an IP packet is not included in a sending address of an IP packet held in an access control apparatus of sending side.

239. (New) An access control apparatus, wherein an IP communication network includes two or more access control apparatus, an IP packet is discarded when a sending address included in a received IP packet is not included in a sending address held in an access control apparatus of receiving side.

240. (New) An IP communication network, wherein said IP communication network includes two or more access control apparatus, an IP address of a terminal is registered in said access control apparatus, and said access control apparatus discards the IP packet when said access control apparatus receives a non-registered IP packet included a source IP address.

241. (New) An access control apparatus, wherein there is provided two or more access control apparatus, an IP address of a terminal is registered in said access control apparatus, and said access control apparatus discards the IP packet when said access control apparatus receives a non-registered IP packet included a source IP address.

242. (New) An IP communication network, wherein said IP communication network includes two or more access control apparatus, an access control apparatus of sending side forms an ICS network frame from an ICS user frame, an access control apparatus of receiving side restores said ICS user frame from said ICS network frame, and said ICS network frame is sent from said access control apparatus of sending side to said access control apparatus of receiving side.

243. (New) An access control apparatus, wherein there is provided two or more access control apparatus, an access control apparatus of sending side forms an ICS network frame from an ICS user frame, an access control apparatus of receiving side restores said ICS user frame from said ICS network frame, and said ICS network frame is sent from said access control apparatus of sending side to said access control apparatus of receiving side.

244. (New) An IP communication network, wherein said IP communication network includes two or more access control apparatus, an access control apparatus of sending side forms an ICS network frame from an ICS user frame, an access control apparatus of receiving side restores said ICS user frame from said ICS network frame, said ICS network frame is sent from said access control apparatus of sending side to said access control apparatus of receiving side, and a record of a conversion table in said access control apparatus of sending side includes at least receiver ICS user address, sending ICS network address, receiving ICS network address.

245. (New) An access control apparatus, wherein there is provided two or more access control apparatus, an access control apparatus of sending side forms an ICS network frame from an ICS user frame, an access control apparatus of receiving side restores said ICS user frame from said ICS network frame, said ICS network frame is sent from said access control apparatus of sending side to said access control apparatus of receiving side, and a record of a conversion table in said access control apparatus of sending side includes at least receiver ICS user address, sending ICS network address, receiving ICS network address.